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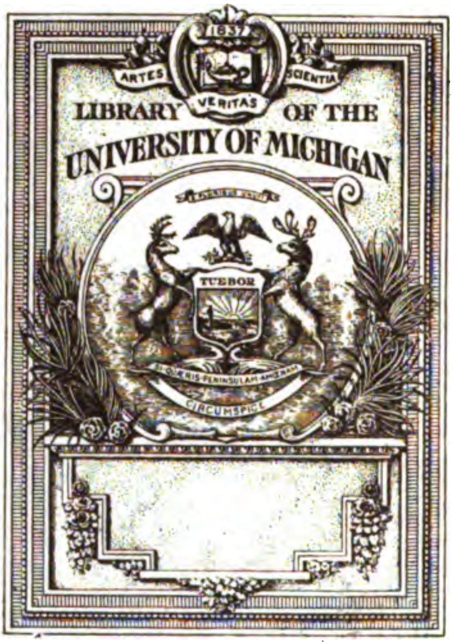
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REPORT

OF THE

GOVERNOR OF NEW MEXICO

TO THE

SECRETARY OF THE INTERIOR

1899.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1899.

UNIV. OF MICH.
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1899.

Capitol Building at Santa Fe.

REPORT

OF THE

GOVERNOR OF NEW MEXICO FOR THE YEAR ENDING JUNE 30, 1899.

SANTA FE, N. MEX., *September 20, 1899.*

SIR: In obedience to your request, I have the honor to herewith transmit to you my report of the Territory of New Mexico for the year ending June 30, 1899, showing the progress and development of our Territory during that period.

I desire to call special attention to the following subjects contained in my report: Education, statehood, report of land commissioner, railroads, irrigation, population, financial condition and taxable property of the Territory and each county, remarks concerning the Old Adobe Palace at Santa Fe, New Mexico war record, agricultural and horticultural development, mining, cattle, sheep and wool, and appropriations.

I have the honor to be, sir, your most obedient servant,

MIGUEL A. OTERO,
Governor of Territory of New Mexico.

The SECRETARY OF THE INTERIOR,
Washington, D. C.

NEW MEXICO.

GEOGRAPHICAL LOCATION AND GENERAL RESOURCES.

New Mexico covers five degrees of the north temperate zone, extending from the thirty-second to the thirty-seventh parallel. Thus it corresponds in length and latitude with the two Carolinas and the major part of Georgia on the Atlantic coast, or with Tennessee and the upper two-thirds of Alabama and Mississippi coming inland. Only Florida among the American States lies wholly south of New Mexico's lower boundary, while but seven and one-half degrees, or one and a half times the Territory's own length, would extend that boundary to the northern limit of the torrid zone. In Europe but the extreme southern parts of Spain and Greece lie within New Mexico's latitudes. All the great resorts of France and Italy, Spain and Greece, with their celebrated skies and boasted climates, lie decidedly farther north. By location New Mexico is distinctly and emphatically a southern country.

PHYSICAL CONFORMATION OF NEW MEXICO.

The topography of New Mexico is interesting, but complex. In shape a parallelogram, with an average breadth of 335 miles and length of 367, it lies, so to speak, broadside to the sun, sloping from north to south, with an elevation of 7,000 feet in the former, sinking down to 3,500 feet in the latter, while many mountain peaks reach a height varying from 8,000 to 13,000 feet. These peaks and their connecting ranges are so scattered as to form the Territory into five distinct watersheds with their respective valleys. The Rio Grande divides New Mexico from north to south into very nearly equal portions and is to this country what the Nile is to Egypt. On the northeast the Canadian outlets the waters of that section into a tributary of the Mississippi, while on the southeast the Pecos has eroded a valley second only in extent to that of the Rio Grande, of which it is the chief tributary. In the northwest the San Juan and in the southwest the Gila collect the waters ultimately reaching the Pacific Ocean.

Each of these main rivers has a vast number of affluent streams, so great in fact that New Mexico is more largely supplied with water courses than is any other mining State or Territory. Along each stream are valleys, beyond the valleys high table lands called mesas, and beyond these the mountain ranges proper. In the mountains and in many of these mesas are deep gorges or canyons with almost perpendicular walls. These collect the water from the melting snows and convey it to the streams ramifying it in all directions. Such, then, is the topography of the Territory. Mountain peaks and chains, high table lands, and lower lying valleys, falling away to the south, thus securing a southern exposure throughout its vast extent of 122,580 square miles, or an area of 100 square miles larger than the land surfaces of New England, New York, and Maryland combined or 1,241 square miles larger than all England, Scotland, Ireland, and Wales.

ABSENCE OF MOISTURE.

The aridity of New Mexico arises partly from her location, partly from her altitude, and partly from her topography. Her location is in the midst of the formerly so-called "Great American Desert," her borders about equidistant, or 500 miles each from the Gulf of Mexico and the Pacific Ocean at their nearest approach. The Gulf of California, at its northern extremity, lies some 150 miles closer, but its water surface is inconsiderable.

The low-lying plains east of the Rocky Mountains draw the moisture-laden winds from the Gulf of Mexico, causing them to pass eastward of this section, but at the same time drawing over the Territory the winds from the Pacific and from the Gulf of California. Before these can reach New Mexico, however, they must climb, height by height, the ascending plateaus of Arizona, culminating in the bald-faced peaks of the Continental Divide. All know that the warmer the air the more water it will hold; and, on the other hand, the more the air is chilled the more it parts with its moisture. Every succeeding altitude but wrings more water from the air, just as each stronger grip of the hand squeezes more water from the sponge. When these almost desiccated winds reach New Mexico only the mountain chains and peaks can draw further moisture from them, leaving the valleys and table-lands with but the scantiest of scant supplies. This is why the average rainfall in the valleys of this Territory will not exceed an inch per month, two-thirds of the entire supply falling during the summer. Compare this with an average yearly precipitation at New York of 43 inches, Boston 45, Savannah 48, and the smallness of the rain supply will begin to be appreciated.

But altitude increases aridity by decreasing atmospheric pressure, and thus accelerating evaporation. The elevation of New Mexico averaging about 1 mile above sea level and reaching in the higher valleys to nearly 2 miles, it can be seen at once that water here most readily gives off its vapor. Especially is this true when taken in connection with the dry condition of the air and the almost ceaseless movements of the winds. The moisture that falls is immediately taken up into the air again. A snow of 2 or 3 inches in depth will pass away in a few hours, leaving the ground dry, having apparently returned into the air instead of melting. A refreshing shower in a day or two will have disappeared, leaving no mud behind. This is why any kind of a cloud is rare, and a day during some part of which the sun does not shine is almost unknown. Then, too, it must be remembered that the general slope of the country is on an average of about 10 feet to the mile, causing water, even in the streams (unless impounded), to run quickly away. For these reasons the humidity of the air in New Mexico averages about 36 per cent, while in New England it is 73 per cent, Florida 75 per cent, San Francisco 76 per cent, and the Gulf States 79 per cent.

RESOURCES OF NEW MEXICO.

FRUIT.

In the metropolitan markets of the Western States New Mexico's horticultural products command from 5 to 15 per cent greater price than the California products, owing to their size, richness in color, and peculiarly delicate flavor. In grapes, for which the Rio Grande Valley is famous, the Flame Tokay, the Muscats, the Black Hamburgs, and similar choice varieties are grown to perfection. In every quarter of the Territory are profitable orchards of apples, pears, peaches, cherries, plums, nectarines, and all the small fruits indigenous to the temperate and semitropic zones.

SUGAR BEETS.

Experiments covering a period of three years demonstrate that New Mexico excels any other country or section in the world in the quantity and quality of sugar beets. In 1896 in the Pecos Valley some 1,400 acres of beets were harvested. The average yield per acre was a little over 16 tons, and the average percentage of saccharine matter was over 16, the highest record ever made. The gross returns to the farmer averaged $67 per acre, and the cost of raising the crop was a little less than $22 per acre. The almost perpetual sunshine during the growing season is the cause of the extra percentage of sugar in the beets, and the richness and adaptability of the soil accounts for the heavy yield.

CEREALS AND VEGETABLES

Of innumerable variety are profitably produced in New Mexico. The latter are notable for size and flavor, as well as their keeping qualities. Rio Grande Valley oats took the second prize at the World's Fair. Every field crop and all classes of vegetables can be and are grown with success and profit.

MINERALS.

It is no exaggeration to affirm that, in point of natural resources, none of the peerless Rocky Mountain States exceed New Mexico. Gold, silver, copper, iron, zinc, lead, mica, coal (anthracite and bituminous), marble, fire clay, alum, sulphur, soda, salt, asphalt, gypsum, etc., are found in paying quantities in almost every county in the Territory. In many localities are valuable deposits of onyx, while the turquois supply of the world is largely furnished by the New Mexico mines.

TIMBER AND COAL.

These essentials to the home seeker are plentiful and cheap in New Mexico. Tracts of virgin forest, large or small, may be purchased now at astonishingly low figures, since the United States court has rendered such timely service in settling titles to the land grants.

MINERAL SPRINGS.

The attention of the tourist and health seeker is especially invited to the number and varied character of the mineral waters in New Mexico. These are easily accessible by rail, and offer every reasonable accommodation to the visitor. Among such resorts are the Las Vegas Hot Springs, the Jemez Hot Springs, the Ojo Caliente Hot Springs, Hudson Hot Springs, the Sulphur Hot Springs, the Macbeth, Taylor, and Coyote mineral waters.

DESIRABLE LANDS.

New Mexico contains nearly 79,000,000 acres. Of these there are about 24,000,000 acres contained in land grants, Indian and military reservations, railroad grants, and Government entries, which leaves available an area of about 55,000,000 acres of land, capable of supporting an immense population running up into the millions.

Thousands of acres of wild lands are to be had by complying with the United States land laws, much of which is contiguous to water and is desirable for colonization purposes when ditches and water-storage reservoirs are provided. The land-grant question is no longer a bugaboo in New Mexico, and through the action of the land court titles to vast tracts have been cleared up and settled. Some millions of acres have been confirmed by the courts to private ownership, while, on the other hand, an equal acreage has been rejected, so far as the grant claimants are concerned, and the land added to the public domain, subject to entry.

OFFICIAL REGISTER.

Territorial officers.—Governor of the Territory of New Mexico, Miguel A. Otero, Las Vegas, N. Mex.; private secretary to governor, Miss N. P. Crane, Santa Fe, N, Mex.; secretary of the Territory, George H. Wallace; clerk in secretary's office, C. P. Wallace; solicitor-general, Edward L. Bartlett; auditor, Luis M. Ortiz; treasurer, J. H. Vaughn; superintendent of Territorial penitentiary, H. O. Bursum; superintendent of public instruction, Manuel C. de Baca; librarian, Judge Lafayette Emmett; adjutant-general, William H, Whiteman; mine inspector, J. W. Fleming; coal-oil inspector, John S. Clark.

Judiciary.—Chief justice of the supreme court and judge of the fourth judicial district, William J. Mills; clerk, Secundino Romero; clerk of the supreme court, José D. Sena. Associate justices of the supreme court—first judicial district, John R. McFie; clerk, A. M. Bergere; judge second judicial district, J. W. Crumpacker;

clerk, H. P. Owen; judge third judicial district, Frank W. Parker; clerk, J. P. Mitchell; judge of the fifth judicial district, Charles Leland; clerk, John E. Griffith.

Delegate in Congress.—Pedro Perea.

Surveyor-general.—Quinby Vance.

United States revenue collector.—A. L. Morrison.

United States district attorney.—W. B. Childers.

United States marshal.—C. M. Foraker.

Deputy United States marshal.—C. A. Coddington.

Registers and receivers land offices.—M. R. Otero, register, and Edward F. Hobart, receiver, Santa Fe; Emile Solignac, register, and H. D. Bowman, receiver, Lascruces; Howard Leland, register, and George R. Guyer, receiver, Roswell; Edward Fox, register, and A. W. Thompson, receiver, Folsom, N. Mex.

District attorneys.—R. C. Gortner, Santa Fe; W. H. H. Llewellyn, Dona Ana and Otero counties; T. A. Finical, Albuquerque; R. D. Barnes, Silver City; Charles A. Spiess, Las Vegas; A. J. Nesbit, Roswell; S. Alexander, Socorro; J. Leah, Raton, N. Mex.

Public printer.—J. D. Hughes.

Indian agent.—N. S. Walpole.

Court of private land claims.—Chief justice, Joseph R. Reed; justices, W. W. Murray, Henry S. Sluss, Thomas C. Fuller, and Wilber Stone; attorney, Matthew C. Reynolds; clerk, J. H. Reeder.

Officers of Territorial institutions.—The governor and superintendent of public instruction are the ex officio members of the board of regents of the following institutions: The University of New Mexico, the New Mexico College of Agriculture and Mechanic Arts, the New Mexico School of Mines, the New Mexico Insane Asylum, and the New Mexico Military Institute.

The University of New Mexico.—Regents: J. H. Wroth, Albuquerque; E. S. Stover, Albuquerque: Juan C. Armijo and F. W. Clancy, Albuquerque; H. L. Waldo, Las Vegas, N. Mex.

New Mexico College of Agriculture and Mechanic Arts.—Regents: G. A. Richardson, Roswell; A. A. Jones, Las Vegas; P. H. Curran, Lascruces; R. E. Twitchell, Las Vegas, and L. Bradford Prince, Santa Fe, N. Mex.

The New Mexico Normal School, Silver City.—Regents: J. W. Fleming, Silver City; W. G. Ritch, Engle; J. A. Mahoney, Deming; Jo E. Sheridan, Silver City, and C. F. Grayson, Silver City, N. Mex.

Normal University of New Mexico at Las Vegas.—Regents: A. B. Smith, Las Vegas; Charles Ilfeld, Las Vegas; M. W. Browne, Las Vegas; Frank Springer, Las Vegas, and Rev. George Selby, Las Vegas, N. Mex.

New Mexico School of Mines, Socorro.—Trustees: J. P. McGrorty, Deming; Joseph E. Smith, Socorro; Juan Jose Baca, Socorro; F. G. Bartlett, Magdalena, and C. T. Brown, Socorro, N. Mex.

New Mexico Military Institute, Roswell.—Regents: Joseph C. Lea, Roswell; Nathan Jaffa, Roswell; J. O. Cameron, Eddy; Charles Wilson, Roswell; Robert S. Hamilton, Roswell, N. Mex.

New Mexico Insane Asylum, Las Vegas.—Directors: O. L. Gregory, East Las Vegas; M. Brunswick, Las Vegas; J. W. Zollars, Las Vegas; Benigno Romero, Las Vegas, and N. T. Cordova, Las Vegas, N. Mex.

Territorial board of education.—Members: Governor, superintendent of public instruction, president of St. Michael's College at Santa Fe, president of the University of New Mexico, president of the New Mexico College of Agriculture, Lascruces, N. Mex.

Board of penitentiary commissioners.—F. H. Pierce, San Miguel County; Juan Navarro, Mora County; J. T. McLaughlin, Santa Fe County; J. Francisco Chaves of Valencia County; Louis Baer of Bernalillo County.

Capitol custodian committee.—Secretary of the Territory, ex officio, Santa Fe; Solomon Spiegleberg, Santa Fe, and Alfredo Hinojos, Santa Fe, N. Mex.

Territorial board of equalization.—First judicial district, Venceslao Jaramillo, Rio Arriba County; second judicial district, Alejandro Sandoval, Bernalillo County; third judicial district, Numa Reymond, Donna Ana County; fourth judicial district, James S. Duncan, San Miguel County; fifth judicial district, John W. Poe, Chaves County.

Cattle sanitary board.—James F. Hinkle, Chaves County; William H. Jack, Grant County; E. C. Austen, Mora County; M. N. Chaffin, San Miguel County; Malaquias Martinez, Taos County, N. Mex.

Board of medical examiners.—G. S. Easterday, Bernalillo County; W. Eggert, Santa Fe County; J. H. Sloan, Santa Fe County; Joseph Cunningham, San Miguel County; W. R. Tipton, San Miguel County; T. P. Martin, Taos County, and George C. Bryan, of Otero County.

Board of dental examiners.—B. M. Williams, of San Miguel County; D. W. Manley, Santa Fe; L. H. Chamberlain of Bernalillo; W. H. White, of Grant County, and A. A. Bearup, of Chaves County.

Members of board of pharmacy.—A. J. Fischer, Santa Fe County; W. C. Porterfield, Silver City; B. Ruppe, Albuquerque; E. G. Murphy, Las Vegas, and P. Moreno, Lascruces.

Sheep sanitary board.—Solomon Luna, of Valencia County; W. S. Prager, of Chaves County, and Henry W. Kelly, of San Miguel County.

Members of bureau of immigration.—L. Bradford Prince, Santa Fe; Felipe Chavez, Belen; W. A. Hawkins, Alamogordo; Frank Springer, Las Vegas; A. C. Campbell, Eddy, N. Mex.

Members of the board of the Deaf and Dumb Asylum.—Benjamin M. Reed, Mrs. T. P. Gable, Mrs. F. P. Crichton, and F. Muller.

Register of the thirty-third legislative assembly.

COUNCIL.

President of the council: J. FRANCISCO CHAVES.

Politics.	Members.	Post-office.	District, by counties.
D.	J. M. Valdez	Springer	Colfax, Mora, Union.
R.	J. S. Duncan	East Las Vegas	San Miguel, Guadaloupe.
R.	Eugenio Romero	Las Vegas	Do.
R.	T. D. Burns	Parkview	Taos, Rio Arriba, and San Juan.
R.	Malaquias Martinez	Taos	Do.
R.	T. B. Catron	Santa Fe	Santa Fe.
R.	T. A. Finical	Albuquerque	Bernalillo.
R.	Thomas Hughes	do	Do.
R.	J. F. Chaves	Progresso	Valencia.
R.	H. O. Bursum	Socorro	Socorro and Sierra.
R.	J. A. Ancheta	Silver City	Donna Ana and Grant.
D.	G. A. Richardson	Roswell	Donna Ana, Grant, Chaves, Lincoln, and Eddy.

HOUSE OF REPRESENTATIVES.

Speaker of the house: MAXIMILIANO LUNA.

D.	T. B. Leib	Raton	Colfax.
R.	Bernardo A. Romero	Watrous	Mora.
R.	John R. Guyer	Clayton	Union.
R.	Rafael Gallegos	Las Vegas	San Miguel.
R.	Wm. H. Schultz	East Las Vegas	Do.
R.	Ramon de Herrera	Rociada	Do.
R.	Celso Baca	Eden	Guadaloupe.
R.	Victor Ortega	Chimayo	Santa Fe.
R.	Wm. Kilpatrick	Madrid	Do.
R.	Pedro Sanchez	Taos	Taos.
R.	V. Jaramillo	El Rito	Rio Arriba.
R.	Frank Staplin	Taos	Taos, Rio Arriba, and San Juan.
R.	A. D. McIntosh	Cedar Hill	Do.
R.	Pablo Crespin	Albuquerque	Bernalillo.
R.	Marcelino Baca	Pena Blanca	Do.
R.	E. Guttierrez	Old Albuquerque	Do.
R.	Max. Luna	Los Lunas	Valencia.
R.	Roman A. Baca	San Mateo	Do.
R.	Pablo Trujillo	Polvadera	Socorro and Sierra.
R.	F. H. Winston	Fairview	Do.
R.	Marcial Valdez	Lascruces	Donna Ana.
R.	R. P. Barnes	Silver City	Grant.
R.	W. H. H. Llewellyn	Lascruces	Donna Ana and Grant.
D.	J. E. Wharton	White Oaks	Lincoln, Chaves, and Eddy.

POPULATION.

It is impossible for me to give anything like a correct count of the population of the Territory, and what I do give is based only on such information as I am able to gather from prominent residents of the different counties.

The census supervisor will soon begin his work in this Territory, and I trust to be able to give an accurate account of our population in my next report.

From information which I have received in response to numerous inquiries addressed to all parts of the Territory, with a view of ascertaining as near as possible the present population, I find that the greatest gain in population was made in the principal cities, counties that are building and extending new lines of railroad, and the mining districts of the Territory. There has also been quite an influx of new residents to the following counties: San Juan, Colfax, Lincoln, Eddy, Chavez, Grant, and Otero.

The mining districts of New Mexico continue to hold out attractive allurements to prospectors, the mining industry having received a great impetus in the districts of Cochiti, Santa Rita, Hanover, San Pedro, Red River City, Elizabethtown, Amizett, Golden, Water Canon, Jarilla, San Andres, Hillsboro, White Oaks, and, in fact, every mining district in the Territory.

The construction of irrigating ditches and reservoirs in the arid regions is reclaiming vast areas and preparing them for cultivation. The home seeker, coming from the more densely populated North and East, finds the conditions so favorable to the production of fruits and grains that each year he induces more and more of his neighbors from his old home to follow his example and take up the new lands of New Mexico, and convert them into homes.

The following estimate of the population, by counties, is as nearly correct as it is possible for me to make it from the limited means of information in my possession, to wit:

Bernalillo	35,000
Chavez	5,000
Colfax	14,000
Doná Ana	12,000
Eddy	4,000
Grant	15,000
Guadalupe	7,500
Lincoln	9,000
Mora	17,000
Otero	3,500
Rio Arriba	19,000
Santa Fe	21,000
San Miguel	35,000
San Juan	5,000
Sierra	5,500
Socorro	19,000
Taos	13,000
Union	7,000
Valencia	14,000
Total	260,500

The Indian population is estimated as follows:

Pueblos	9,047
Jicarillas	832
Mescaleros	450
Navajos (Arizona and New Mexico)	15,000
Total	25,329

This makes a total population of the Territory, as estimated, of 285,829.

STATEHOOD.

I would most earnestly renew my recommendation, made in my last report, with reference to the early admission of New Mexico as a State of the Union. The reasons given at that time for such admission are stronger now by reason of increased population, wealth, and intelligence. In that report I stated:

> It is unnecessary here to repeat the arguments which demonstrate conclusively that New Mexico is entitled to statehood. Her sheep and cattle industries, as already reviewed herein, her mineral wealth, her agricultural advantages, all stand as a guaranty that the new State of New Mexico will be amply able to meet the obligations which necessarily will be incurred in the change of government and her ability to sustain her own government permanently.
>
> The admission of New Mexico to the sisterhood of States would be beneficial alike to her people and the Federal Government. Self-government, which carries with it to every citizen the right to participate in the selection of the various officers intrusted with the management of the government, is a privilege few American citizens would willingly be deprived of, and one that all eagerly seek. Self-government would not only relieve the Federal Government of the enormous expense it is subjected to in the management of the present Territorial form of government, but would also relieve it of the responsibility of selecting the officers to manage the Territory's affairs.

Since that time our assessed value for taxation has increased and it is now more than $40,000,000, and constantly growing, while the population, caused by immigration, is also increasing rapidly. New Mexico sold more than 18,000,000 pounds of wool this year, which is 3,000,000 pounds more than ever before in her history, while her mines of copper and gold are being developed in a manner never known before. More capital has been invested in their development during the past year than previously, especially in Grant, Otero, Bernalillo, and Santa Fe counties. In this connection I quote the following from a Washington correspondent of the St. Louis Globe-Democrat.

> WASHINGTON, D. C., *September 11.*
>
> The War Department to-day made public the figures on the enlistments for the first ten regiments. Massachusetts furnished 833, which is the best showing, in proportion to population. The figures for Western and Southwestern States are as follows: Missouri, 639; Arkansas, 122; Colorado, 316; Illinois, 1,161; Indiana, 654; Iowa, 192; Kansas, 415; Texas, 548; Mississippi, 42; Nebraska, 171; Tennessee, 567; Arizona, 90; New Mexico, 121; Oklahoma, 124; Indian Territory, 109.
>
> The Northwestern States made a very bad showing. Wisconsin furnished but 98 men; Idaho, 15; Minnesota, 122; Montana, 30; North Dakota, 13; Oregon 80; South Dakota, 9. This is a total of 367 men for all the Northwestern States. Georgia alone furnished 446, and Texas 485. The smallest number of recruits secured from any one State was two, from Nevada.
>
> Missouri's showing was one of the best, considering the fact that no regiment of the first ten were rendezvoused there. The reports of recruiting for the ten regiments now being organized show that the Thirty-eighth, now being recruited at Jefferson Barracks, by Colonel Anderson, leads all the rest, with 485 men to its credit up to date. The nearest approach to this showing is made by the Forty-second Regiment, which is being organized at Fort Niagara, N. Y. The number of men secured for this regiment to date is 339. The total number of recruits secured for the ten new regiments to date is 4,790.

There is a slight error in the above article, where it is stated that "Massachusetts furnished 833, which is the best showing in proportion to population." This is not true for both New Mexico and Arizona did much better in proportion to the number of their people. New Mexico sent 121 and Arizona 90, or a total of 211. The census of 1890 gives Arizona's population as 59,696; New Mexico's 153,593, and Massachusetts' 2,238,943. New Mexico and Arizona, then, with a combined population of 213,289, or less than one-tenth of that of Massachusetts, furnished over one-fourth of the number sent by the State of the Pilgrim Fathers, of Adams, Webster, and Hoar.

This is a comparison with the best in the extreme East. Now let us see what showing the two Territories make when compared with some of the sovereign States of the imperial West. Idaho, 15; Montana, 30; North Dakota, 13; South Dakota, 9; Nevada, 2; Wisconsin, 98. Total, 167, or just 44 less than that furnished by New Mexico and Arizona, whose people are "incapable of self-government." The States above mentioned have twelve United States Senators and sixteen members of the national House of Representatives. New Mexico and Arizona have two Delegates in Congress, without the right to vote on any question, because they represent constituents "incapable of self-government."

Why not statehood, then?

Under the treaty of peace concluded between the United States and Mexico, February 2, 1848, known as the "Treaty of Guadalupe-Hidalgo," it was provided that "the territory acquired by the Mexican war and under that treaty should be incorporated in the union of the United States, and be admitted at the proper time (to be judged by the Congress of the United States) to the enjoyment of all the rights of citizens of the United States according to the principles of the Constitution." Since that time, California and Colorado have been admitted, and New Mexico and Arizona (which was formerly a county of this territory) have been refused that privilege, and, I might say, right. For fifty years the Territory, through its legislature, and by the recommendations of its governors, has been asking for this recognition guaranteed by solemn treaty stipulations. As long ago as 1850 New Mexico adopted a State constitution and elected a governor and two United States Senators, and its admission was only prevented by the adoption of the celebrated "compromise measures of that year." Twenty years afterwards it held a constitutional convention which formulated a most admirable constitution. In 1876 a bill to admit it to Statehood, together with Colorado, passed both Houses of Congress, and only failed to become a law by nonconcurrence in an amendment to that bill. Again, in 1889, there was a constitutional convention, lasting nearly a month, composed of men of the highest character and ability, and their labors resulted in the presentation of a constitution which I have no hesitation in saying was the best formulated in the United States. Copies were laid before both Houses of Congress, and several bills were introduced for its admission; and since that time each session of Congress has seen bills introduced by members of both political parties for the admission of New Mexico as a State, which have so far failed, and for which failure no good reason has been given. Another bill for this purpose will be introduced at the coming session of Congress, and I urge its earnest consideration in behalf of the quarter of a million people of this Territory.

The organization of civil government in the Territory of New Mexico was unique. The organic act establishing the Territory was approved September 30, 1850; the ratification of the treaty of peace between the United States and Mexico was held May 30, 1848, and proclamation thereof made July 4, 1848, just fifty years earlier than the capture of Santiago. But two years prior to that time the United States Government had established through its military authority a complete code of civil laws for the future Territory of New Mexico, which, at that time, consisted of the present Territory, all of Arizona, and the southern half of Colorado. On the 22d day of September, 1846, Brig. Gen. S. W. Kearney, in command of the army of invasion, issued and proclaimed to the people a "bill of rights," which is still retained on the statutes unchanged. On the same day he proclaimed "the Kearney Code," which was reenacted by the legislature in 1865 and nearly all the provisions of which are still in force; and on the same day by virtue of his authority as brigadier-general, he appointed the following list of civil officers: Charles Bent, to be governor; Donaciano Vigil, to be secretary; Richard Dallam, to be marshal; Frank P. Blair, to be United States district attorney; Charles Blumner, to be treasurer; Eugene Leitzendorfer, to be auditor of public accounts; and Joab Houghton, Antonio Jose Otero, and Charles Beaubian, to be judges of the superior court. In his letter transmitting to the Adjutant-General a copy of these laws and list of appointments, General Kearney made the following statement:

> I take great pleasure in stating that I am entirely indebted for these laws to Col. A. W. Doniphan, of the First Regiment of Missouri Mounted Volunteers, who received much assistance from Private Willard P. Hall of his regiment. These laws are taken, part from the laws of Mexico, retained as in the original, a part with such modifications as our laws and Constitution made necessary; a part are from the laws of Missouri Territory, and a part from the laws of Texas, and also of Texas and Coahuila, a part from the statutes of Missouri, and the remainder from the Livingston code.

The first governor, Bent, was assassinated the year after his appointment, at the pueblo of Taos, during what is known as the "Taos rebellion," which was suppressed with considerable loss of life by United States troops, out of which rebellion arose a number of prosecutions for treason, conducted by Frank P. Blair, United States attorney.

The civil law and the Kearney Code remained the rules of civil action down to 1876, when, by statute, the "common law as recognized in the United States of America" was adopted. This was the law of the land until the legislature of 1897 adopted a code of civil procedure.

The first legislative assembly of the Territory of New Mexico assembled in Santa Fe in December, 1847. The laws passed at that session were printed in a pamphlet, to which was added "Order No. 10," from the Headquarters of the Ninth Military Department, imposing a duty of 6 per centum on merchandise imported into the Territory. The authorization of these laws is printed in the same pamphlet, as follows:

> SPECIAL ORDER, No. 5. } HEADQUARTERS NINTH MILITARY DEPARTMENT,
> *Santa Fe, N. Mex., February 5, 1848.*
>
> The foregoing legislative enactments of the Territory of New Mexico, having been duly reviewed by the commanding general of the Territory, they are hereby approved, and they will be duly observed.
>
> By order of brigadier-general,
>
> STERLING PRICE.
>
> W. E. PRINCE,
> *Aide-de-Camp and Acting Assistant Adjutant-General.*

The first section of the General Orders No. 10, referred to on the title page of the laws, is as follows:

> On and after the 1st day of February, 1848, the following regulations will govern the civil and military officers in the discharge of their respective duties: First, the officers named in the statutes as secretary of Territory, United States district attorney, and United States marshal are hereby abolished.

It is believed the above résumé of the methods of introducing American laws into conquered Spanish territory may be of interest at this time when similar conditions exist which may require similar action on the part of the Government.

OFFICE OF THE BOARD OF PUBLIC LANDS,
Santa Fe, N. Mex., September 5, 1899.

SIR: I have the honor to submit herewith a special report as commissioner of public lands of the Territory of New Mexico.

By an act of Congress, approved by the President June 21, 1898, certain grants of land for the benefit of the public schools of New Mexico and the higher educational institutions of the Territory, and for internal improvements, were made by the United States to the Territory of New Mexico.

For the support of the common schools, sections 16 and 36 in each township were so granted. This endowment, estimated at about 4,000,000 acres, or about equal to the area of Connecticut and Rhode Island together, which is large in size, is of comparatively little money value, as the greater part is arid land, only fit for grazing when rains develop the natural grasses, but with the development of water in New Mexico will become of greater value and productive of very beneficial results.

In addition, the United States is to pay to the Territory, for the support of the common schools, 5 per centum of the proceeds of the sales of pnblic lands from and after the approval of the act of Congress, July 21, 1898. This money is to form a permanent fund, the interest of which alone is to be expended in support of our public schools.

For the support of higher educational institutions of the Territory, Congress made the following provisions: Lands to the extent of two townships in quantity are authorized to be reserved for the establishment of a university; in addition to the two townships, 65,000 acres of nonmineral, unappropriated, and unoccupied public land were granted, together with all saline lands in the Territory, for the use of said university.

For the Agricultural College of New Mexico, 100,000 acres are reserved and granted.

Congress also provided that the schools, colleges, and universities shall forever remain under the exclusive control of the Territory, and that no part of the proceeds arising from the sale or disposal of any lands granted for educational purposes, or income thereof, shall be used for the support of any sectarian or denominational school, college, or university.

In addition to the above, the following grants are made for the purposes mentioned:

	Acres.
Water reservoirs, for irrigating purposes	500,000
Improvement of the Rio Grande in New Mexico	100,000
Insane asylum	50,000
School of mines	50,000
Deaf and dumb asylum	50,000
Reform school	50,000
Normal schools	100,000
Institute for the blind	50,000
Miners' hospital	50,000
Military institute	50,000
Penitentiary	50,000
Total	1,100,000

It is well to state that this Territory has already established and in successful operation a university at Albuquerque, a military institute at Roswell, an agricultural college at Las Cruces, a school of mines at Socorro, and normal schools at Las Vegas and Silver City, and an institute for the deaf and dumb at Santa Fe. These institutions, being created by law during the past ten years, have been solely supported by direct taxation. The grants of land above described will place them on a firm foundation and will enable them to do the good intended.

A commission was created to select these lands in quantity as indemnity, as provided by the act, which commission consists of the governor, surveyor-general, and the solicitor-general of New Mexico, acting as a commission, under the direction of the Secretary of the Interior.

The lands selected for agricultural and university purposes and sections 16 and 36 reserved for the common schools are to be leased for a term not to exceed five years, and are not for sale. The remainder of the lands granted may be leased or sold in such annual amounts as authorized by the Territorial legislature.

The thirty-third legislative assembly of New Mexico passed an act, which was approved by the governor of the Territory, March 16, 1899, prescribing regulations and rules to carry into effect the letter and spirit of the Congressional enactment granting the lands as heretofore indicated, the legislative enactment creating the board of public lands consisting of the governor, solicitor-general, and commissioner of public lands, for the management, lease, and sale of public lands, so generously granted by Congress.

The legislative enactment is very carefully drawn, and its provisions fully protect the interests of the educational institutions and public schools.

The Federal commission to select public lands and the Territorial board of public lands to manage and dispose of them have organized and vigorously taken in hand the management of the trust. Already several hundred applications for the leasing of school land have been secured, at an annual rental ranging from 2 to 12 cents per acre. As soon as applications are approved and leases executed it is hoped that the amount of money to be realized from the leasing of these lands will be large.

It is already becoming apparent that the vast stock interests of the Territory, a fair estimate being about 1,500,000 head of cattle and 4,000,000 sheep, not to count horses, mules, and goats, will demand to lease at remunerative figures every acre of land that the Territory will have the right to lease.

In the matter of selling lands, the Territorial board of public lands is acting upon the principle that for the present only a small amount of the lands granted should be sold, sufficient at least to defray the United States land office fees. The selection should be made as rapidly as possible, in order to secure to the Territory the best lands available. Taking into consideration the willingness of the people of New Mexico to tax themselves for the support of the public schools and higher educational institutions, as shown by the records of the taxes assessed and collected since 1889, and the fact that the donations of land by Congress will within a few years bring in a revenue which will constantly grow, there can be no question but that the prospects for the educational and Territorial institutions are very bright.

With the growth and development of the Territory, which is apparent to the most casual observer, the demand for better schools grows apace. Better schools means a higher rate of taxation, but with the endowment of the public lands so generously granted by the Congressional act of June 21, 1898, and the income therefrom, which will become evident within a year or two, there will be no necessity to increase taxation in order to obtain better schools.

I would respectfully call your attention to section 10 of the Congressional act, which restricts the leasing of more than one section as well as the sale of more than one-quarter section of land to one person.

I earnestly recommend that we be relieved from these limitations, which, as they exist, are an obstacle and curtail the benefits that we expect to derive from the act. Six hundred and forty acres should be the minimum not the maximum acreage to any one person. Much of our lands are valuable only in large tracts, and available as such for grazing. There never was any good reason for such restrictions in the Southwest. The State of Colorado authorizes its board of land commissioners to lease any portion of the land of the State. I see no reason why we should be the exception.

The university lands should be subject to sale, thereby creating an available fund to extend the work of this worthy institution.

I would further recommend that part of section 6 of the Congressional act "The building known as the Old Palace in the city of Santa Fe" revert back to the Federal Government. This historical building is national, and should remain always under the care of the Government, and I might suggest as a western branch of the Smithsonian Institute.

Very respectfully, your obedient servant,

ALPHEUS A. KEEN,
Commissioner of Public Lands.

Governor M. A. OTERO,
Santa Fe, N. Mex.

PREHISTORIC TIMES.

Among the Pueblos the houses were communal as well as the lands, the building consisting of from two to five stories, each successive one receding several paces from the face of the one immediately below it, and each entered only from above by means of scaling ladders let down or taken up for that purpose. These edifices were constructed of adobe (sundried bricks), cobblestones held together by adobe mortar, or matched stone without mortar, the numerous rooms being ceiled with beams covered with earth. Each village or community usually contains two or three of these buildings, which looked more like fortresses than dwellings, though indeed designed for both purposes.

One such structure at Weqw gi was 700 feet in circumference and contained 99 rooms. Pueblo Bonito was 544 feet long by 314 wide, with 300 apartments. The pueblo of Penasco Blanco was 1,700 feet long and comprised 112 rooms. Among the remains of the sacred city of Pecos are the ruins of the temple, which for ages preserved the holy fire of Montezuma. Its dimensions are 191 feet in length, 35 feet in breadth, and 50 feet in height, encompassed by walls 6 feet in thickness. The interior is divided in compartments, having cells, cisterns, and tanks, but the outworks and turrets are a mass of ruins.

The Taos pueblo, in the northern part of the Territory, is one of the finest specimens of these ancient dwellings to be found in modern use. There are two houses on opposite sides of a small stream, between 300 and 400 feet long by about 150 feet wide, anciently connected by a bridge. They are five and six stories high, terraced from bottom to top, divided into numerous compartments, with entrance to each story, as above mentioned, by ladders giving access to trapdoors in the roof. With these ladders drawn up at night and a sentinel stationed upon the house top to give notice of approaching danger, the peaceful Pueblos could sleep in security though surrounded by the marauding hordes of bloodthirsty Apaches, Navajos, and Utes. In these buildings at Taos live about 800 men, women, and children like one family, and in apparently the greatest harmony, occupying the identical abodes used by their forefathers for generations prior to the birth of Columbus, or that of his royal patrons.

Following is an interesting article upon a strange race of people known as the "cliff dwellers," long since vanished, but enough traces are left to make scientists eager for further investigation of what was once the home of this now extinct people.

CLIFF DWELLERS.

Very important explorations have lately been made in the Santa Clara Canyon in regard to the famous cliff dwellers, which are visited every year by hundreds of people. This party of explorers measured the communal building of the ancient and abandoned cliff dwellers, and found it to be 300 by 400 feet, three stories high, and containing approximately 2,000 rooms. They excavated two rooms and found the walls in good state of preservation, with some evidence of building skill. They discovered considerable pottery, beautifully decorated with geometrical designs and partly glazed, something unusual, as the pottery heretofore found was generally unglazed. Many turkey bones gave evidence that the ancient occupants knew the good points of the national bird; the turkey corrals were found to be small, and connected with the living rooms by a low archway only high enough for a turkey to slip through. In the two rooms pipes of an unusual shape were found. One was in imitation of a prickly pear, and the other of a cactus. There were evidences that the cliff dwellers grew tobacco, and the charred corn found proves that they also grew corn. There was evidence that the building had been deserted in haste, and that the cliff dwellers had left nearly everything behind them. The most important discovery, however, was that of nine skeletons almost complete. The skulls show that the cliff dwellers were not Indians, but were allied to the Caucasian race. The back of the skull is flat, but the forehead is well developed. The chin is strong, and the appearance of the face must have been long, slim, and intellectual. They had beautiful teeth, but, strange to say, instead of incisors they had grinders, which, according to the theory of evolution, is proof that they were vegetarians for many ages before being driven out by invaders or by some calamity. One of the skulls had been pierced by an arrow on one side, while on the other it was fractured as if by a tomahawk. The man to whom it belonged had perhaps fallen while repelling an attack by the Indians. One femur measured 19½ inches, and the skeleton to which it belonged must have been between 7 and 8 feet high.

The burying places at Santa Clara have not been discovered yet, but it is known that the cliff dwellers were buried in a stooping position, with their heads between their knees and the feet pointing to a common center. Skulls were found with long red hair by this exploring party, and also monuments with inscriptions that resemble Chinese characters, while on the Gila River monuments were found that seemed to be of Egyptian origin. One well-known scientist in the party has made a study of the subject, and feels positive that the cliff dwellers belonged to another race than the Indian. It is believed that the cliff dwellings are from 1,500 to 2,000 years old, and that the Santa Clara settlement was abandoned on account of the eruptions of the crater, not far from here, which threw out the immense lava fields that cover large areas to the west of the city of Santa Fe. The relics found include instruments used for dressing hides; pottery, some of the pottery being very large; skeletons, and other remains of the cliff dwellers.

These discoveries prove that long before Columbus set foot on the shores of the New World, the valleys and plains of New Mexico were the seat of a civilization which has been the wonder of scientists and explorers; for ages unknown people contended for the possession of the lands and streams. Nation after nation of strange beings followed each other in conquest, and to-day, as above stated, evidences are to be found in the ancient settlements of their unknown inhabitants. The old pueblos in New Mexico are the homes of the descendants of the cliff dwellers, and the antiquarian will find enough of what is old beyond tradition, yet new to the nineteenth century, to keep him occupied for years in patient research. It is not necessary to go to Egypt or Persia to find ruins and relics of people who have passed from the face of the earth; they can be found right here in New Mexico and within easy reach of comfortable homes and hotels.

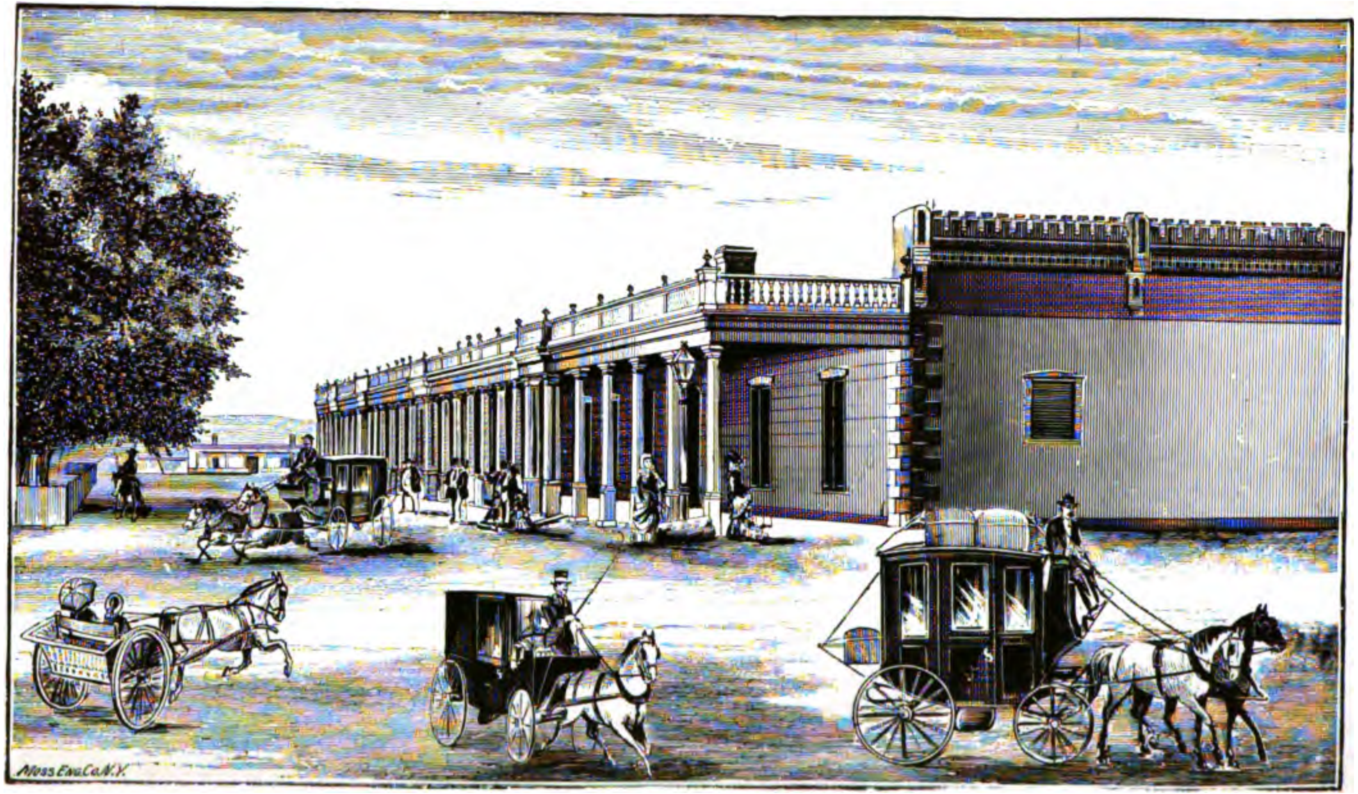
SOCIAL CONDITIONS.

The cities and towns of our Territory are filled with cultured, companionable people, ever ready to entertain and look out for the welfare of the stranger within its gates. The hotels are equal to any of the Eastern summer resorts, and life is as attractive here as anywhere else in the world. In most of the towns throughout New Mexico, a picturesque plaza forms the center of the town. In this plaza concerts are given regularly by the local bands of the town, which are enjoyed alike by the resident and the stranger.

MORAL CONDITIONS.

The material prosperity of the Territory of New Mexico is not more marked than is its moral advancement. The various fraternal societies are well represented, and there are a number of trade and labor unions.

The various church organizations are in charge of refined and cultured men and are well represented. The following-named churches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GOVERNOR'S OLD PALACE, SANTA FE.

are all well attended throughout the Territory in every county and city: Catholic, Episcopal, Methodist Episcopal, Methodist Episcopal South, Presbyterian, Congregational, Christian, Baptist, Mormon, African Methodist, African Baptist, and others.

The fraternal societies in existence here are as follows: Masonic Knights Templar, Thirty-second Degree Scottish, Odd Fellows, Knights of Pythias, Ancient Order of United Workmen, Woodmen of the World, Elks, Red Men, Mystic Shriners, Junior Order of Mechanics, the different railroad organizations, and others.

We also have a large organization of the Grand Army of the Republic, with posts at different localities in the Territory. Their annual reunions are always looked forward to with great pleasure by the old soldier residents of our Territory.

THE VARIOUS CHURCHES.

Next to the schools, the American immigrant inquires concerning the church facilities. These, like the schools, are better in the towns than they are in the country; but this is also the case very largely in the States, and is necessarily so in all new sections. All the leading denominations are represented in the Territory, the towns being graced with handsome edifices, where attractive sermons are delivered by able and educated ministers, and where well-trained choirs add the pleasing enticement of music to the gospel's tender entreaties.

The Catholic Church, of course, first occupied the field in the Territory. The first Protestant church to enter the Territory was the Baptist. Rev. Samuel Gorman, of that church, in 1850 was the first Protestant missionary to the Pueblos, his labors being centered in Laguna. The Methodists were but one year behind their Baptist brethren. Following close upon the Methodists, the Presbyterians came to the Territory in 1851. The first Episcopal services in New Mexico were held at Santa Fe, in 1863. The first Congregational church in New Mexico was organized in 1881 at Albuquerque, and several other churches have since followed.

There are many of the Jewish faith in New Mexico, but, as far as the writer has been able to ascertain, they have organized congregations and regular worship only at Albuquerque and Las Vegas.

The colored people of the Territory generally belong to the African Methodist Church, of which denomination there are organized churches at Albuquerque, Las Vegas, and one or two more of the larger towns.

The Mormons have a few settlements in New Mexico, but these they have exclusively to themselves, and they are pretty generally on the northwestern borders of the Territory. There are Freethinkers, Unitarians, and Universalists scattered through the various towns, but none of these faiths have any organized societies.

"THE ADOBE PALACE."

The old residence of the governors-general under Spanish and Mexican rule, known as the "Palace," which for more than three hundred years has been the headquarters of the governors, captains-general, and chief executives of the Territory, province, or kingdom, is now in an admirable state of preservation, owing to the liberal appropriations made by the Government in the past. I regret to say, however, that unless the General Government continues to look after this historic old building, as it has in the past, it will soon go to ruin and decay.

It is at present occupied in the west end by the post-office; in the center as the residence and office of the Territorial secretary, and in the east end by the governor for his office and the historical society of the Territory. This last institution has stored therein many rare and curious images and other works of prehistoric races found in the Territory, as well as ancient arms, armor, and articles of household use.

In an act passed by the last Congress, donating lands to the public schools and institutions of the Territory, approved June 21, 1898, by inadvertence a clause was inserted, being the last three lines of section 6 of the act, donating this historic old building to the Territory, as follows:

> The building known as the "Palace," in the city of Santa Fe, and all lands and appurtenances connected therewith and set apart and used therewith, are hereby granted to the Territory of New Mexico.

This clause does not meet with the approbation of our citizens, who believe that, so long, at least, as we are a Territory, this palace should remain under the fostering care and protection of the General Government.

The Territory is not financially able to take proper care of and preserve this building as should be done, as it requires all the revenue possible to maintain its own public buildings and institutions which are necessary to the proper conduct of its government. In addition, our people feel that the United States owning and caring for this building puts it in closer touch with all of our citizens, and accordingly I most earnestly recommend that such clause of section 6 of the act above referred to be repealed.

While the new capitol building, now nearing completion, will have offices for the governor and secretary, yet they are so distant from the business part of the city it will be inconvenient for these officers to use them except during the session of the legislature, which meets only once in two years and sits for sixty days, and during the remainder of the two years these officers should be in a more convenient locality, such as is afforded by the old "Palace," and it is only proper that the Government itself should furnish these officials with offices, the same as it does other United States officials.

The post-office is also located in this building, most conveniently for the accommodation of the public, and, of course, without any expense for rent.

The building is now badly in need of repair, and will of course suffer greatly on account of not getting the appropriation asked for last year by the Territorial secretary and custodian.

I trust that my recommendation will be carried out, and that the necessary appropriation will be made by Congress, as asked by the secretary, and attached hereto, in order that the necessary work be commenced at as early a day as possible.

In this connection, showing the historical association connected with this old building, I desire to quote from the report of my predecessor, Hon. L. Bradford Prince, made in 1890. The accuracy of the statements here made can not be doubted, as ex-Governor Prince has made a study of New Mexico and has written a history of the Territory which is recognized as an authority.

Ex-Governor Prince, in his report, says:

> Without disparaging the importance of any of the cherished historical localities of the East, it may be truthfully said that this ancient palace surpasses in historic interest and value any other place or object in the United States. It

antedates the settlement of Jamestown by nine years and that of Plymouth by twenty-two, and has stood during the two hundred and ninety-two years since its erection not as a cold rock or monument, with no claim upon the interest of humanity except the bare fact of its continued existence, but as the living center of everything of historic importance in the Southwest. Through all that long period, whether under Spanish, Pueblo, Mexican, or American control, it has been the seat of power and authority. Whether the ruler was called viceroy, captain-general, political chief, department commander, or governor, and whether he presided over a kingdom, a province, a department, or a Territory, this has been his official residence.

From here Oñate started in 1599 on his adventurous expedition to the eastern plains; here, seven years later, 800 Indians came from far-off Quivira to ask aid in their war with the Axtaos; from here, in 1618, Vincente de Salivar set forth to the Moqui country, only to be turned back by rumors of the giants to be encountered; and from here Peñalosa and his brilliant troop started on the 6th of March, 1662, on their marvelous expedition to the Missouri; in one of its strong rooms the commissary-general of the Inquisition was imprisoned a few years later by the same Peñalosa; within its walls, fortified as for a siege, the bravest of the Spaniards were massed in the revolution of 1680; here, on the 19th of August of that year, was given the order to execute 47 Pueblo prisoners in the plaza which faces the building; here, but a day later, was the sad war council held which determined on the evacuation of the city; here was the scene of triumph of the Pueblo chieftains as they ordered the destruction of the Spanish archives and the church ornaments in one grand conflagration; here De Vargas, on September 14, 1692, after the eleven hours' combat of the preceding day, gave thanks to the Virgin Mary, to whose aid he attributed his triumphant capture of the city; here, more than a century later, on March 3, 1807, Lieutenant Pike was brought before Governor Alencaster as an invader of Spanish soil; here, in 1822, the Mexican standard, with its eagle and cactus, was raised in token that New Mexico was no longer a dependency of Spain; from here, on the 6th of August, 1837, Governor Perez started to subdue the insurrection in the north, only to return two days later and to meet his death on the 9th near Agua Fria; here, on the succeeding day, Jose Gonzales, a Pueblo Indian of Taos, was installed as governor of New Mexico, soon after to be executed by order of Armijo; here, in the principal reception room, on August 12, 1846, Captain Cooke, the American envoy, was received by Governor Armijo and sent back with a message of defiance; and here, five days later, General Kearny formally took possession of the city, and slept, after his long and weary march, on the carpeted earthen floor of the palace.

From every point of view it is the most important historical building in the country, and its ultimate use should be as the home of the wonderfully varied collections of antiquities which New Mexico will furnish.

Coming down to more modern times, it may be added that here General Lew. Wallace wrote Ben Hur, while governor, in 1879 and 1880.

TERRITORY OF NEW MEXICO,
OFFICE OF THE SECRETARY,
Santa Fe, October 3, 1898.

YOUR EXCELLENCY: I had the honor on the 10th day of September, 1897, to submit for your consideration and approval, to be forwarded to the honorable Secretary of the Interior, a statement of the then condition and needs of the "Adobe Palace" in this city.

In section 6 of an act of Congress approved June 21, 1898, the "Adobe Palace" and the grounds in connection therewith were ceded to the Territory of New Mexico. This historical building has often been brought to the attention of Congress in petitions for its preservation, and its transfer came as a surprise to the whole Territory. It is almost the last remaining link between the very earliest days of Spanish occupation, more than three hundred years ago, and the present.

The building is a mecca for all tourists to New Mexico and the Southwest, both native and foreign, and, as the former custodian, I have to report visitors almost every day in the past two years, sometimes numbering as many as a hundred at one time.

The transfer of this building to the Territory, under the provisions of the act, means its early and sure destruction, for under the act any income derived from the building must go to the school fund, and the Territory could not and would not preserve it. Placed as it is upon the public plaza, as in Spanish and Mexican countries is always done, I feel confident there would be a constant struggle by individuals for occupancy of it, and there would be no income derived for the school fund.

Upon the request of very many of the most public-spirited, respectable, and intelligent of our citizens, within and without the city of Santa Fe, I would most earnestly urge the repeal of that portion of section 6 in the said act referring to the "Adobe Palace" in Santa Fe.

And in this connection it is proper to call attention to the estimates submitted in the year 1897 for the purpose of putting the "Adobe Palace" in complete and substantial repair, a copy of which is forwarded herewith. The need is greater to-day than two years ago.

I am, very respectfully, yours,

GEO. H. WALLACE,
Secretary of New Mexico and
former Custodian of the Adobe Palace.

Hon. MIGUEL. A. OTERO,
Governor of New Mexico, Santa Fe.

OFFICE OF THE SECRETARY AND CUSTODIAN
OF THE ADOBE PALACE,
Santa Fe, N. Mex., September 10, 1897.

SIR: In reply to your request for a statement as to the condition and needs of the Adobe Palace, I have the honor to submit the following:

The amount ($2,000) expended by my predecessor during the last fiscal year for new roof, repairs to post-office room, etc., left much to be done to place the building in thorough repair and preserve it from the weather. The wooden sidewalk is nearly worn out and must be replaced. It will be better for the building, and comply with the request of the city, if this should be made of cement with a stone curbing. About 150 feet of the portal is falling from decay, and must be replaced. This was not roofed last year for this reason: The ceilings of the entire building have been of canvas, but now that there is a steel roof, economy and health demand the substitution of plaster in place of the constantly falling cloth, so easily destroyed and calling for repair. The floors are scarcely any two on the same level, and, being of soft pine, are very much worn and in some places patched to the limit of possibility.

A thorough coat of paint, outside and in, and calcimining for the walls are badly needed, in addition to a plaster repair of the outside and inside walls.

The plumbing needs overhauling, and as the supply of water is now entirely from the city system, should be extended to the residence portion of the palace.

The following is submitted as an estimate of the amount necessary by the above conditions, and for the proper protection of the building, and to make it comfortable for occupancy:

Ceilings and floors	$2,000
Cement sidewalk	1,000
Painting and calcimining	500
Portal and roof	1,000
Plumbing	500
Incidental repairs	1,000
Total	6,000

Very obediently, yours,

GEO. H. WALLACE,
Secretary of New Mexico and Custodian of the Adobe Palace.

Hon. MIGUEL A. OTERO,
Governor of New Mexico.

APPROPRIATIONS.

The salary of the governor is fixed by statute (May 1, 1876, R. S. U. S., sec. 1845) at $3,500 per annum, but for many years—indeed, since the act was passed—there has only been an appropriation to pay this salary of $2,600, and it has been determined in the Supreme Court of the United States, in a case taken from the Court of Claims, that the acceptance by the officer of the amount of the appropriation was a bar to his receiving anything more.

The same is true of the secretary of the Territory, his salary, as fixed by statute (same section), being $2,500 per annum, and the appropriation being $1,800.

While these amounts might have been sufficient at the time the act was passed, twenty-two years ago, the duties and responsibilities of both officers have increased to a wonderful extent by reason of the increase in population, the construction of railroads, and general business enterprises. The actual work occupies all the time during business hours, and constantly encroaches far into the night, besides necessitating frequent journeys from one part of the Territory to another on official business.

In addition, there is no provision of law for a private secretary or clerk to the governor, while his official correspondence alone is enormous, and he is obliged to employ a private secretary for only a part of the time, and settle for the same out of other resources, not being able to give constant employment, which should be done in the interest of public business.

The secretary of the Territory is allowed a clerk, with an appropriation of $1,200 per annum to pay the same. I would therefore recommend most strongly that the governor be allowed a clerk by the Government, at a salary of $1,200 per annum, and that an appropriation be made accordingly.

I would also earnestly recommend that the full compensation provided by law to the governor and secretary be included in an appropriation to that amount.

By the Territorial laws the governor is made ex officio a member of nearly all of the boards of regents and directors of the different Territorial institutions, and of necessity meets with them in different portions of the Territory when occasion presents. This of itself involves a considerable outlay of traveling expenses, for which the present appropriation of $500 is totally inadequate, as out of this amount has to be paid fuel, lights, stationery, telegrams, janitor service, office furnishings, etc., and, as the office is constantly running behind, I would recommend an increase for contingent expenses of the governor's office.

The five judges of the Territory of New Mexico, consisting of the chief justice of the supreme court, with four associate justices, are allowed $3,000 per annum only. The work is so heavy that they are actually holding either district or supreme court for the hearing and trial of cases eleven months in each year; and under our Territorial law the courts are open at all times for the transaction of any business not involving an actual trial by jury, so that the chambers work is very heavy. In the Indian Territory there are four judges, at an annual compensation of $5,000; Oklahoma has five judges, with a salary of $3,000 each. The population of New Mexico, while not as large, is nearly equal to that of the two above-named Territories, while its area is double that of the two Territories named.

The compensation of these judges was also fixed on the 1st of May, 1876, when there were no railroads in the country, less than one-third of our present population, with no communication with the outside world except by wagon, and it is altogether too inadequate a compensation for the responsibility and labor involved.

I would therefore earnestly recommend that the compensation of each of the judges of the supreme court be increased to $5,000 per annum.

RAILROADS.

The railroad interests are a most important factor in the development of the resources of the Territory, and but few of the towns and villages are now without railroad and telegraphic communication.

There are at present 1,693 miles of railroad actually constructed within the Territory, owned and operated by eleven different corporations, as follows:

Atchison, Topeka and Santa Fe Railway Company.
Denver and Rio Grande Railroad Company.
Pecos Valley and Northeastern Railroad Company.
Santa Fe Pacific Railway Company.
Southern Pacific Railway Company.
El Paso and Northeastern Railroad Company.
Colorado and Southern Railroad Company.
New Mexico and Arizona Railroad Company.
Arizona and New Mexico Railroad Company.
Alamogordo and Sacramento Mountain Railroad Company.
Tierra Amarilla Southern Railroad Company.

Some of these companies operate wholly within the Territory, but a majority of them have only a portion of their mileage within the Territory.

The Atchison, Topeka and Santa Fe, one of the pioneer railway systems of the West, has by far the largest mileage, as it enters the north line of the Territory near the city of of Raton, passes through the entire Territory near the center, traversing the fertile valley of the Rio Grande, and passing out near the city of El Paso, Tex. Upon the main line of this road and its numerous branch lines are the three largest cities of the Territory—Las Vegas, Santa Fe, and Albuquerque—and also the cities of Raton, Springer, Los Lunas, Socorro, San Marcial, Las Cruces, Deming, and Silver City. This company alone has 692 miles of constructed track within the Territory,

The Denver and Rio Grande Railroad enters the Territory south of the town of Antonito, Colo., and passes through the Territory in a southerly direction to the city of Santa Fe, a distance of 114 miles. It also enters the Territory again west of the town of Antonito, and has 52 miles of track in the Territory upon the line from Antonito to Durango. This company, therefore, has 166 miles of its road within the Territory, and the city of Santa Fe and the towns of Espanola, Embudo, Tres Piedras, Chama, and Lumberton are upon this road.

The Pecos Valley and Northeastern Railroad Company have 192 miles of constructed road within the Territory. It traverses the fertile Pecos River Valley, passing the cities of Roswell and Carlsbad, and many other cities and towns on its line recently constructed to Amarilla, Tex.

The El Paso and Northeastern is a new road upon which work is still in progress. This company has a mileage of 152 miles within the Territory. Leaving the city of El Paso, Tex., it passes through Fort Bliss, Jarilla, Alamogordo, La Luz, Tularosa, and Three Rivers to its present terminus in the Salado coal fields at the town of Gray. This line of road passes through some of the best mining, timber, stock raising, and farming lands of the Territory.

The Santa Fe Pacific has a mileage of 157 miles within the Territory, from the city of Albuquerque to the city of Gallup, where the road enters the Territory of Arizona. The towns of Laguna, Grants, Bluewater, Wingate, Manuelito, and Gallup are situated along this portion of the road.

The Southern Pacific Railroad Company has about 166 miles of its tracks within this Territory. Entering the Territory from the east about 4 miles northwest of the city of El Paso, Tex., passing through a broad plain devoted mainly to the stock industry, it enters the Territory of Arizona near San Simon. The towns of Deming, Lordsburg, and Shakespeare are situated upon this road.

The Colorado and Southern Railroad Company has 76 miles of its tracks within the Territory, and crosses the extreme northeastern corner. The road passes through the town of Clayton, which is the county seat of Union County, and enters the State of Texas at the town of Texline. Stock raising is the most important industry along this portion of the road.

Passing again to the southwestern portion of the Territory, there is the New Mexico and Arizona Railroad Company, whose road runs from Deming, N. Mex., to Benson, Ariz., a distance of 176 miles. This company uses the track of the Southern Pacific from Deming to Lordsburg, so that but 25 miles of its own track is within this Territory.

The Arizona and New Mexico Railroad Company has constructed its road from Lordsburg to Clifton, Ariz., and 30 miles of this road is in New Mexico. The principal industry of this road is the transportation of ores, but it also does a general railroad business.

The Alamogordo and Sacramento Mountain Railroad Company has constructed 20 miles of their line, running from the town of Alamogordo to Cloudcroft, upon the summit of the Sacramento Mountains, during the past year. This road is used mainly for the transportation of timber to the mills of Alamogordo. This road will be extended to Penasco, a distance of 15 miles, during the present year.

The Tierra Amarilla Southern Railroad Company is a private road, owned by the Burns & Biggs Lumber Company. It runs from the town of Chama, Rio Arriba County, to the town of Brazos, in the same county, a distance of 17 miles.

NEW RAILROADS.

There have been 290 miles of new railroad constructed within the Territory during the past year by the following companies:

	Miles.
El Paso and Northeastern	152
Pecos Valley and Northeastern	100
Alamogordo and Sacramento Mountain	20
Atchison, Topeka and Santa Fe	18

but this new mileage is included in the above total.

PROJECTED RAILROADS.

It seems altogether probable that a new railroad will be constructed at a very early day from the city of Las Vegas through the Mora Valley to the town of Taos, a distance of 100 miles. A company has been incorporated for the purpose of constructing this road. The line has been surveyed, and some preliminary work has been done upon the road. If constructed, it will open up a most fertile portion of the Territory, as well as large mining and timber industries.

A new railroad is also projected from Albany, Tex., through the city of Las Vegas and on to the Northwest, but of its construction little can be said at this time, as the project has not taken definite shape, so far as I am advised.

A railroad company has also been organized for the purpose of constructing a new railroad from the city of Durango, in the State of Colorado, through San Juan County, N. Mex., to the city of Albuquerque or Gallup, but while I am of the opinion that it is only a question of time when such road will be constructed, I can only refer to it as a projected road because of the meager information now at hand.

RECAPITULATION.

Railroads now constructed.

	Miles.
Atchison, Topeka and Santa Fe Railway Company	692
Pecos Valley and Northeastern Railroad Company	192
Denver and Rio Grande Railroad Company	166
Southern Pacific Railroad Company	166
El Paso and Northeastern Railroad Company	152
Santa Fe Pacific Railroad Company	157
New Mexico and Arizona Railroad Company	25
Arizona and New Mexico Railroad Company	30
Alamogordo and Sacramento Mountain Railroad Company	20
Colorado and Southern Railroad Company	76
Tierra Amarilla Southern Railroad Company	17

New mileage constructed within a year, 290.
Railroad companies operating in the Territory, 11.

Elevations on line of Atchison, Topeka and Santa Fe Railway in New Mexico.

Station name.	Elevation.	Station name.	Elevation.
	Feet.		*Feet.*
North Portal Tunnel	7,548.00	Levy	6,223.00
Lynn	7,525.00	Bond	6,203.00
Raton	6,597.00	Shoemaker	6,229.00
Otero	6,357.00	Kroenig	6,549.00
Dorsey	6,042.00	Azul	6,650.00
Maxwell City	5,864.00	Las Vegas	6,358.50
Toril	5,884.00	Blackwell	6,257.00
Rayado	5,947.00	Chapelle	6,043.00
Nolan	6,042.00	Ribera	5,996.50
Wagonmound	6,153.00	Fulton	6,502.00
Tipton	6,340.00	Rowe	6,781.00
Watrous	6,370.00	Fox	7,126.00
Onava	6,705.00	Canoncito	6,833.00
Arriba	6,451.00	Twichell	6,311.00
Romero	6,262.50	Ortiz	5,796.00
Sulsbacher	5,955.00	Waldo	5,591.00
Blanchard	6,357.00	Thornton	5,224.00
Sands	6,266.00	Elota	5,098.80
Gise	6,763.00	Bernalillo	5,009.00
Pecos	7,028.64	Albuquerque	4,910.00
Glorieta	7,415.00	Barr	4,869.00
Lamy	6,447.00	Los Lunas	4,809.00
Galisteo	6,000.00	Sabinal	4,720.00
Los Cerrillos	5,647.65	Alimillo	4,613.00
Rosario	5,383.00	Socorro	5,550.00
South Portal Tunnel	7,584.00	Arny	4,466.00
Hillside	7,028.00	Pope	4,530.00
Dillon	6,435.00	Crocker	4,688.50
Hebron	6,136.00	Cudder	4,664.00
Schomburg	5,951.00	Upham	4,516.38
Dover	5,796.00	Rincon	4,021.00
Springer	5,745.00	Tonuco	4,220.00
Colmor	5,901.00	Leasburg	3,918.00

Elevations on line of Atchison, Topeka and Santa Fe Railway in New Mexico—Continued.

Station name.	Elevation.	Station name.	Elevation.
	Feet.		*Feet.*
Lascruces	3,850.00	San Marcial	4,418.00
Mesquite	3,795.00	Lava	4,685.00
Berino	3,762.00	Engle	4,728.00
Deming	4,477.70	Aleman	4,622.00
Magdalena	6,609.00	Grama	4,306.00
Santa Rita	6,460.00	Detroit	4,016.40
Lake Valley	5,115.00	Selden	3,927.00
Blossburg	6,760.00	Dona Ana	3,879.00
Algodones	5,065.00	Mesilla Park	3,837.00
Alamedo	4,957.00	Earlham	3,781.00
Abajo	4,898.00	Anthony	3,753.12
Isleta	4,856.00	Silver City	6,000.00
Belen	4,762.00	Whitewater	5,295.00
Lajoya	4,666.00	Nutt	4,759.00
Lemitar	4,584.00	Santa Fe	6,919.00
San Antonio	4,500.00	Las Vegas Hotsprings	6,611.00

REPORT OF COMMISSION OF IRRIGATION AND WATER RIGHTS.

I beg to submit herewith report made to me by the above-named commission during the last legislative assembly, held in Santa Fe, N. Mex., on January 16, 1899, which is as follows:

The undersigned, constituting the commission of irrigation and water rights in the Territory of New Mexico, appointed pursuant to the act of the legislative assembly approved March 18, 1897, respectfully submit the following report:

The law under which the commission was appointed is the following:

AN ACT creating a commission of irrigation and water rights. C. B. 127; approved March 18, 1897.

"*Be it enacted by the thirty-second legislative assembly of the Territory of New Mexico:*

"SEC. 1. A commission is hereby created to consist of the president of the council and the speaker of the house of representatives of the thirty-second legislative assembly of the Territory of New Mexico, three resident citizens of this Territory to be selected by said president and speaker jointly, which commission is hereby directed to inquire into the conditions existing in different portions of the Territory with reference to irrigation and water rights, to examine the laws upon this subject in force in this Territory and in other States and countries, and to recommend to the next legislative assembly such legislation as in the opinion of said commission shall meet all requirements on this subject.

"The members of the said commission shall meet within sixty days after the adjournment of the thirty-second legislative assembly at such place as they may agree upon and organize by the election of a president and secretary from among their number.

"It shall be the duty of such commission to embody in a report to the governor of the Territory all possible information concerning the subject of irrigation and water supply, the amount of land in the Territory cultivated by the means of irrigation, the extent of the present and proposed systems of storage reservoirs, and such other facts as they may deem proper and useful, which report shall be published at least twenty days before the beginning of the next session of the legislature.

"SEC. 2. The members of the commission hereby created shall serve without pay or compensation, but their expenses while actually engaged in the performance of the duties prescribed by this act shall be paid by the Territorial treasurer out of any available funds in his hands, and the Territorial auditor is hereby authorized and directed to draw his warrant upon the treasurer for such expenses upon certificates signed by the president and secretary of such commission.

"SEC. 3. This act shall take effect and be in force from and after its passage."

The members of the commission met at Santa Fe within the time prescribed by said act, and organized by electing Anthony Joseph president and Joseph E. Saint secretary. Meetings were subsequently held at Albuquerque on the 9th of October, 1898, and the 26th of October, 1898.

At the first of these meetings plans were adopted for carrying on the work devolving upon the commission, receiving reports of subcommittees and of the different members touching special matters referred to them, and at the latter meetings the material for the final report was fully considered and the text of the report formulated.

After dividing up the work of gathering information among the several members of the commission in the first instance, it was found that the examination of existing conditions in the Territory and the accumulation of the facts relating thereto would require an amount of work and a degree of technical knowledge which none of the members could furnish. After a careful consideration, and after consultation with the governor and obtaining his approval, we employed Mr. P. E. Harroun, an accomplished civil and hydraulic engineer, for a limited time, to make such investigation and report as was deemed necessary to enable us to comply with the law.

The investigations made by the several members of the commission, and the facts set forth in Mr. Harroun's report, have convinced us that the greatest need of New Mexico upon the subject of irrigation and water rights at the present time is not new legislation, but accurate information. Acting, as we have done, without compensation, it was not practicable for the members of the commission to devote any considerable time to the gathering of facts of the kind desired. These are only to be obtained by actual observation in the field, and to be of real service this can only be done by a trained observer, familiar with the approved scientific methods of studying such a subject. The data bearing upon the flow of water in streams, variable as are those of New Mexico with the time of the year, the drainage area of localities favorable for the collection of surface and torrential waters for storage, and the quantities of land susceptible of reclamation by storage or additional irrigation by improved methods, can for the most part only be collected for practical use by systematic observation and record of facts, often extending through months and years. The facts presented in this report are, as to a large part of the Territory, necessarily general, and not based upon the systematic study above alluded to. In the northeastern and southeastern parts of the Territory, where the Maxwell and Pecos companies, respectively, have constructed extensive irrigation systems on a large scale and according to modern scientific methods, it is possible to secure reliable and instructive data. In the greater part of the Territory, however, the lack of detailed observation and systematic record prevents anything more than a fair general statement of conditions and results at the present time. No work of this kind has ever been done by the Territory. The small amount of it that has been done by the Government has been confined to the Rio Grande Valley.

While, therefore, the members of the commission feel that they have accomplished about as much as was reasonably practicable under the circumstances, they regard their report as suggestive of what might be done by a better organized effort, rather than as of any great permanent value in itself.

There are certain matters now requiring attention, of vast importance as regards the future of the Territory, which seem to us to imperatively call for further and more complete investigation in the line of the work intrusted to us:

First. The selection of lands donated by Congress to New Mexico in aid of irrigation and the reclamation of arid lands, and for the maintenance of educational and other institutions.

The law making this donation, enacted June 21, 1898, is as follows:

"AN ACT to make certain grants of land to the Territory of New Mexico, and for other purposes.

"*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That sections numbered sixteen and twenty-six in every township of the Territory of New Mexico, and where such sections, or any parts thereof, are mineral or have been sold or otherwise disposed of by or under the authority of any act of Congress, other nonmineral lands equivalent thereto, in legal subdivisions of not less than one quarter section, and as contiguous as may be to the section in lieu of which the same is taken, are hereby granted to said Territory for the support of common schools, such indemnity lands to be selected within said Territory in such manner as is hereinafter provided: *Provided*, That the sixteenth and thirty-sixth sections embraced in permanent reservations for national purposes shall not at any time be subject to the grants of this act, nor shall any land embraced in Indian, military, or other reservations of any character be subject to the grants of this act: but such reservations shall be subject to the indemity provisions of this act.

"SEC. 2. That fifty sections of the unappropriated nonmineral lands within said Territory, to be selected and located in legal subdivisions as hereinafter provided in this act, shall be, and are hereby, granted to said Territory for the purpose of erecting public buildings at the capital of the State of New Mexico when said Territory shall become a State, and be admitted into the Union, when said capital shall be permanently located by the people of New Mexico for legislative, executive, and judicial purposes.

"SEC. 3. That lands to the extent of two townships in quantity, authorized by the sixth section of the act of July twenty-second, eighteen hundred and fifty-four, to be reserved for the establishment of a university in New Mexico, are hereby granted to the Territory of New Mexico for university purposes, to be held and used in accordance with the provisions in this section; and any portions of said lands that may not have been heretofore selected by said Territory may be selected now by said Territory. That in addition to the above, sixty-five thousand acres of nonmineral, unappropriated, and unoccupied public land, to be selected and located as hereinafter provided, together with all saline lands in said Territory, are hereby granted to the said Territory for the use of said university, and one hundred thousand acres to be in like manner selected, for the use of an agricultural college. That the proceeds of the sale of said lands, or any portion thereof, shall constitute permanent funds, to be safely invested, and the income thereof to be used exclusively for the purposes of such university and agricultural college, respectively.

"SEC. 4. That five per centum of the proceeds of the sales of public lands lying within said Territory which shall be sold by the United States subsequent to the passage of this act, after deducting all expenses incident to the same, shall be paid to the said Territory, to be used as a permanent fund, the interest of which only shall be expended for the support of the common schools within said Territory.

"SEC. 5. That the schools, colleges, and university provided for in this act shall forever remain under the exclusive control of said Territory, and no part of the proceeds arising from the sale or disposal of any lands herein granted for educational purposes, or of the income thereof, shall be used for the support of any sectarian or denominational school, college, or university.

"SEC. 6. That in lieu of the grant of land for purposes of internal improvement, made to new States by the eighth section of the act of September fourth, eighteen hundred and forty-one, which section is hereby repealed as to New Mexico, and in lieu of any claim or demand of the State of New Mexico under the act of September twenty-eighth, eighteen hundred and fifty, and section two thousand four hundred and twenty-nine of the Revised Statutes, making a grant of swamp and overflowed lands, which grant it is hereby declared is not extended to said State of New Mexico, the following grants of nonmineral and unappropriated land are hereby made to said Territory for the purposes indicated, namely:

"For the establishment of permanent water reservoirs for irrigating purposes, five hundred thousand acres; for the improvement of the Rio Grande in New Mexico, and the increasing of the surface flow of the water in the bed of said river, one hundred thousand acres; for the establishment and maintenance of an asylum for the insane, fifty thousand acres; for the establishment and maintenance of a school of mines, fifty thousand acres; for the establishment and maintenance of an asylum for the deaf and dumb, fifty thousand acres; for the establishment and maintenance of a reform school, fifty thousand acres; for the establishment and maintenance of normal schools, one hundred thousand acres; for the establishment and maintenance of an institution for the blind, fifty thousand acres; for a miner's hospital for disabled miners, fifty thousand acres; for the establishment and maintenance of a military institute, fifty thousand acres; for the enlargement and maintenance of the Territorial penitentiary, fifty thousand acres. The building known as the Palace, in the city of Santa Fe, and all lands and appurtenances connected therewith and set apart and used therewith, are hereby granted to the Territory of New Mexico.

"SEC. 7. That this act is intended only as a partial grant of the lands to which said Territory may be entitled upon its admission into the Union as a State, reserving the question as to the total amount of lands to be granted to said Territory until the admission of said Territory as a State shall be determined on by Congress.

"SEC. 8. That all grants of land made in quantity or as indemnity by this act shall be selected by the governor of the Territory of New Mexico, the surveyor-general of the Territory of New Mexico, and the solicitor-general of said Territory, acting as a commission, under the direction of the Secretary of the Interior from the unappropriated public lands of the United States within the limits of the said Territory of New Mexico.

"SEC. 9. That said commission shall proceed, upon the passage of this act, to select said lands, for each purpose as hereinbefore designated, in legal subdivisions, of not less than one quarter section, and shall report to the Secretary of the Interior such selections, designating in such report the purpose for which such bodies of land as selected are to be respectively used as provided above in this act.

"SEC. 10. That the lands reserved for university purposes, including all saline lands, and sections sixteen and thirty-six reserved for public schools, may be leased under such laws and regulations as may be hereafter prescribed by the legislative assembly of said Territory; but until the meeting of the next legislature of said Territory, the governor, secretary of the Territory, and the solicitor-general shall constitute a board for the leasing of said lands: and all necessary expenses and costs incurred in the leasing, management, and protection of said lands and leases may be paid out of the proceeds derived from such leases. And it shall be unlawful to cut, remove, or appropriate in any way any timber growing upon the lands leased under the provisions of this act, and not more than one section of land shall be leased to any one person, corporation, or association of persons, and no lease shall be made for a longer period than five years, and all leases shall terminate on the admission of said Territory as a State; and all money received on account of such leases in excess of actual expenses necessarily incurred in connection with the execution thereof, shall be placed to the credit of separate funds for the use of said institutions, and shall be paid out only as directed by the legislative assembly of said Territory, and for the purpose indicated herein. The remainder of the lands granted by this act, except those lands which may be leased only as above provided, may be sold under such laws and regulations as may be hereafter prescribed by the legislative assembly of said Territory; and all such necessary costs and expenses as may be incurred in the management, protection, and sale of said lands may be paid out of the proceeds derived from such sales; and not more than one quarter section of land shall be sold to any one person, corporation, or association of persons, and no sale of said lands or any portion thereof shall be made for less than one dollar and twenty-five cents per acre; and all money received on account of such sales, after deducting the actual expenses necessarily incurred in connection with the execution thereof, shall be placed to the credit of separate funds created for the respective purposes named in this act, and shall be used only as the legislative assembly of said Territory may direct, and only for the use of the institutions or purposes for which the respective grants of lands are made: *Provided*, That such legislative assembly may provide for leasing all or any part of the lands granted in this act on the same terms and under the same limitations prescribed above as to the lands that may be leased only, but all leases made under the provisions of this act shall be subject to the approval of the Secretary of the Interior, and all investments made or securities purchased with the proceeds of sales or leases of lands provided for by this act shall be subject to like approval by the Secretary of the Interior.

"SEC. 11. That there is hereby appropriated from the unexpended funds in the Treasury of the United States, ten thousand dollars, or so much thereof as may be necessary, to be expended under the direction of the Secretary of the Interior, for the purpose of paying the expenses of the selection and segregation of said respective bodies of land, including such compensation as the Secretary of the Interior may deem proper.

"SEC. 12. That all acts and parts of acts in conflict with the provisions of this act, whether passed by the legislative assembly of said Territory or by Congress, are hereby repealed."

It will be apparent to everyone acquainted with the conditions existing in New Mexico, that the location and selection of these lands is going to be a matter of enormous importance, and that it will depend solely upon an intelligent selection whether they shall ultimately become saleable or productive of income by way of rental so as to accomplish the purposes for which the law is designed. There are large quantities of public land in the Territory which never will become saleable at the price fixed by the law, and which could not be leased for any appreciable interest on that price, especially with the restriction as to quantity of land to be leased or sold to any one person. On the other hand, there are many localities where lands will ultimately attain the maximum value of farming lands by reason of their proximity to eligible sites for future water storage and irrigation systems. To be of permanent value, a large part of the donated land ought to be selected with reference to their future reclamation in this way. For such selections there is at the present time no reliable guide. The information in possession of the United States surveyor-general would not suffice for this purpose. Nothing short of an examination by competent hydraulic engineers would furnish the facts which are absolutely essential.

Second. The injury to the people of New Mexico by the increased and constantly increasing appropriation of water from the head tributaries of the Rio Grande in Colorado.

Sooner or later this is bound to become an interstate question, and in order that the interests of New Mexico shall be properly guarded it will be essential that her representatives be armed with absolute and accurate information touching the flow of water in the Rio Grande and its tributaries, covering not only present conditions, but an accumulation of statistics as to the past. Colorado, with its well-organized and liberally supported State engineering department, has a great advantage over us in this respect. Nothing short of a systematic study of these matters, continued through several years, will be adequate to enable us to meet this question when it comes to an issue.

Third. Possible future legislation.

The interests of irrigation are not uniform throughout the Territory on account of the wide differences in latitude, elevation, and character of productions. This is why, as we show further on, any attempt at legislation beyond the general principles already well established is not advisable at the present time. It is impossible, with the information now in hand, to determine beforehand whether any given scheme of legislation desired by and applicable to one part of the Territory may not be the cause of great injury and injustice to another. To enable future legislators to exercise their proper and only legitimate function, viz, that of enacting laws for the benefit of the whole people, the information which might be accumulated by further systematic investigation of these water questions will be absolutely necessary.

One of the duties imposed upon the commission by the act creating the same was the examination into the laws with reference to irrigation and water rights in force in New Mexico, and in other states and countries, and to recommend such legislation as, in the opinion of the commission, will meet all requirements of this subject.

Serious attention has been given to this branch of their duties by the members of the commission, who have brought to their aid the experience and advice of many of the prominent citizens of the Territory and elsewhere, deeply interested in the study and possibility of irrigation. One of the most serious impressions resulting from a study of this branch of the commission's labors is that great embarrassments or losses will almost inevitably occur in making any change that trespasses upon the general system of laws now in force; a very large part of our people, thoroughly understanding the rights which they now have in and to waters beneficially used by them, are strongly distrustful of any proposed change thereof, the demonstration of the result of which they have not seen in practical working. There is a widespread and largely justifiable impression prevailing that the result of changing the present irrigation laws of the Territory in any essential respect would be to disturb vested rights, and to unsettle public confidence in legal rights which have long been owned and beneficially used in the great portion of the waters of our streams. For this reason it was determined by the commission, after thoroughly canvassing the subject at its first meeting, that any and all recommendations from the commission along this line should be of the most conservative character, and that, before any change in the laws was recommended, there should be a close study of the laws and methods of enforcing them as now existing, and unless it was apparent that changes could be recommended which would be of considerable advantage to the public at large, it would be better to recommend that no changes whatever be made. With this spirit the commission, through its committees, entered into the task of the analysis of the present laws of the Territory. These were found to consist of certain Territorial statutes, of several acts of Congress, and of principles announced by the supreme court of the Territory independent of statute.

The first statutory law we have on the subject is the provision of the Kearny Code of 1846, to the effect that all laws in force at the time of the promulgation thereof, concerning water courses, should continue in force. Kearny Code, September 22, 1846, Tit. Water Courses. Sec. 1. (Compiled Laws, 1897, page 89.)

This reference was, undoubtedly, to the Spanish-Mexican laws then in force with reference to the control of water; and, while the commission has not seen fit to go into a special study of the laws thus referred to, it is believed that such reference thereto was intended to apply to the system of community ditch laws, which at that time regulated the rights of the owners thereunder in this Territory, in common with the great body of Mexican possessions in the arid section, and that, at such time, almost all rights claimed by the citizens of New Mexico in the waters of any of its streams were by virtue of such community laws, and that the individual rights of private owners of ditches had not at that time assumed such value as to attract the necessity of legislation to protect the same.

The assumption that the language referred to in the Kearny Code was directed particularly to rights owned under the community system, received additional strength from the fact that the legislative assembly of 1851 and 1852, following close upon the promulgation of the Kearny Code, adopted a set of laws with reference to the community ditch system, which laws were largely the crystallization into statutes of the principles theretofore governing such questions, and the customs arising thereunder. Act of July 20, 1851, page 189. Act of January 7, 1852, page 276. (Compiled Laws, 1865, chap. 1, secs, 1–8. Id. secs.. 9–26.)

It is to the Spanish-Mexican laws, therefore, and to legislative enactments beginning in 1851, continuing more or less to the present time, that we owe the present acequia laws of the Territory. The continuance of this system, admirably adapted to the necessities of the people living in the most thickly inhabited parts of the Territory, has been productive of good results where the spirit of the law has been enforced.

Amendments to the laws of 1851 and 1852 were enacted in 1861, regulating the working on public acequias. Act of January 29, 1861. (Compiled Laws, 1865, secs. 27–32.) Also, in 1863, regulating the control of ditches by overseers. Act of January 28, 1863. (Compiled Laws, 1865, secs. 33–39.) Also, in 1866, regulating the repair and relocation of ditches when injured or destroyed by floods. Act of January 18, 1866, pages 90–96. (Compiled Laws, 1897, chap. 1, secs. 25–30.)

In 1874 the legislature extended the right to all persons to construct private acequias and take water therefor from any available source, with a provision for compensation of the owners of the land through which the necessary ditches were constructed; and simple and inexpensive methods were prescribed by which such terms should be assessed and such rights recognized. Act of January 9, 1874, page 28. (Compiled Laws, 1897, chap. 1, secs. 23, 24.)

On February 24, 1887, an act was passed, applicable only to corporations, providing for the organization of such for the purpose of constructing and maintaining reservoirs, canals or ditches, and pipe lines, in order to supply water for irrigation, mining, manufacturing, domestic and other public uses, including cities and towns, and for the purpose of colonization and improvement of lands in connection therewith. This act gave full authority to corporations formed thereunder to acquire water and water rights, either by purchase or condemnation, and to construct ditches, canals, and reservoirs to be used in connection therewith. Laws of 1887, chap. 12, page 29. (Compiled Laws, 1897, chap. 1, secs. 468–493.)

On February 20, 1889, an act was also passed providing that incorporated towns and villages exceeding in population 3,000 persons should have certain priority for the use of water in streams upon or near which they are situated. Laws of 1889, chap. 70, page 150.

On February 26, 1891, another act was passed providing a method by which a record of the subsequent construction or enlargement of any ditch, canal, or feeder for a reservoir taking water from a natural stream should be made, and by which legal appropriation of water should be made, and defining in some particulars the essentials of such legal appropriation. Laws of 1891, chap. 71, page 130. (Compiled Laws of 1897, secs. 493, 494.)

These acts are the only ones announcing any principles adopted by the Territory for the determination of rights respecting water, and, together with two or three minor acts authorizing various counties to assist in irrigation enterprises, and the act of February 13, 1893, exempting all irrigation ditches, canals, and reservoirs from taxes for a period of six years after the commencement thereof, they form the body of Territorial enactments on the subject of water rights.

It will thus be seen that, while our statutory laws on this subject are fragmentary, there is no contradiction or unprogressive feature incorporated in any of the same. On the other hand, they have been found to be simple, in the main logical, and in view of the conditions, both of land and people, have been proved to be beneficial in their workings to the great body of the people. An analysis of these laws shows that they provide for and protect the Spanish-Mexican theory, under which, as stated above, good results have been obtained, and that they also protect and encourage individual enterprises; and that the principles of such laws, as reenforced by the interpretation of the courts, protect each system from any trespass whatever upon the other.

As the ideal of beneficial legislation is the least possible regulation necessary with reference to a given subject, it would appear that our legislators in the past have most promoted the irrigation interests and the development of the Territory by their remarkable conservatism in legislating upon this subject. Few laws have been deemed necessary other than the community system of laws above mentioned, and these have, as above stated, been enacted. The principles of these laws are easily construed by the courts, and very little difficulty is found in following and putting them into effect. There is no subject with reference to which the laws of the Territory (both the community and private water appropriations) are better understood by the people, or with reference to which principles are more definitely established. We are very largely indebted for this, not only to the above legislation and the decisions of our own courts, but to the decisions of all the courts in the arid States and Territories, in all of which the right to appropriation of surplus waters of all streams is recognized and upheld, qualified only by the doctrine that priority in time gives priority of right; that rights claimed must be perfected with due energy; that the appropriation must be made for beneficial purposes, and is limited to the amount needed for such purposes.

While the legislation of the various States and Territories varies considerably, yet it is believed that all of them recognize this doctrine as above defined. In several of the States and Territories it was early contended that the acts of the citizens thus taking possession of and diverting the water from the streams thereof were contrary to the principles of the common law, which recognizes the rights of riparian owners along such streams; and because of this belief and the confusion into which some of the courts fell in interpreting the rights thus claimed, as well as because of the fact that the rights claimed by different appropriators were found, in many instances, to trespass upon each other, a great amount of litigation, in which the doctrine of the right of appropriation has been involved, has arisen all over the West. Through this litigation it is believed that all questions capable of giving rise to embarrassing disputes concerning the uses of water have practically been settled and adjusted, and the public made familiar therewith. There is a great unanimity of decisions in establishing such principles, and where there is any serious variance it has been caused by local statutes. Indeed, so common was the acquiescence of the public in the rights and principles which governed the appropriation of water, that early in the history of the arid West the Congress of the United States recognized such rights by the law now embraced in sections 2339 and 2340 of the Revised Statutes thereof, which read as follows:

"SEC. 2339. Whenever, by priority of possession, rights to the use of water for mining, agricultural, manufacturing, or other purposes have vested and accrued, and the same are recognized and acknowledged by the local customs, laws, and the decisions of courts, the possessors and owners of such vested rights shall be maintained and protected in the same; and the rights of way for the construction of ditches and canals for the purposes herein specified, is acknowledged and confirmed.

"SEC. 2340. All patents granted or preemption or homesteads allowed shall be subject to any vested and accrued water rights or rights to ditches and reservoirs used in connection with such water rights as may have been acquired under or recognized by the preceding section."

These enactments of Congress have been repeatedly construed by the Supreme Court of the United States, and the opinions contained in such decisions and the announcement thereof, have been a material assistance to all of the States and Territories affected thereby, and have greatly promoted the unanimity of judicial decisions referred to above.

It is therefore apparent, that though, as above stated, legislative enactments of this Territory with reference to this subject are fragmentary, yet, in view of the settled customs prevailing all over the arid West and of the enactments of Congress above referred to, additional legislation has not been and is not now essential in this Territory, to fully guarantee to the people the full and beneficial enjoyments of rights which they have always claimed and now possess. Neither is it believed that any of the statutory enactments have incorporated in the body thereof any vicious principles which might operate to impair the interest of irrigation in the Territory. The result of the laws providing for such systems so enforced in New Mexico with reference to the creation of litigation arising therefrom is the best evidence of the wisdom of that system; and while there have been from time to time some complaints of irregular diversion of water at the expense of proprietors below yet the least number of cases have ever gone beyond the trial court, and comparatively few have been commenced even; such as have arisen have been settled in the main speedily and without hardship to those having the better right to such waters.

One result of our system of laws on this subject is, that when such a case arises, our courts, not being hampered with conflicting and untried provisions, as some other courts of our Western States and Territories, have the great body of principles, as decided by other courts of last resort, to draw from in the adjustment of their decisions along the line of equity and good sense, and the widest possible latitude in putting their decisions into effect.

A notable case has recently been tried in one of the southern counties of the

Territory, involving the most complicated issues and a vast number of litigants, having some 30 or 40 parties thereto, and involving as many claims of priority for different appropriations; after the evidence had been taken, the district court (under our laws as they now stand) found no difficulty whatever in adjusting the priorities of all of these parties, and in providing by its decree a method for the distribution among all of those found to have rights thereto the insufficient supply of water over which they were litigating. This was a celebrated case, and was watched with great interest by the public; and it is believed that the result thereof brought peace to the whole community and established firmly the rights of each claimant, protecting the same as against the trespass of any other claimant, and providing a method for the distribution of the waters in such manner as could hardly have been reached under any system of legislative enactment in any of the Western States or Territories. It was a satisfactory demonstration of the wisdom of the present status of the development of our Territory, simply announcing by legislative enactment the general principles, and leaving our courts to enforce the same by jurisdictional methods, as may be deemed equitable in each particular case.

The commission has not been unmindful of that part of the act creating the same, wherein it was directed to examine the laws of other States and countries, in determining what legislation should be recommended to the legislative assembly, and has made such study thereof as it was possible for it to make without going to the places where such laws were in effect. The legislation of such States and Territories has been carefully read, as have the decisions of the courts based thereupon; much that is admirable has been found to be incorporated in the legislation of nearly every State, along with much which it would have been best to have omitted, and in some instances it has resulted in great confusion of principles. The system adopted in each State has been found to be the result of the needs of that particular jurisdiction, and the conditions are more or less different in each State from those that obtain in any other State.

Much of this great system of laws would no doubt be of great benefit if the conditions to which the same is intended to be applied existed in our Territory, but in the opinion of the commission they would be valueless, if ingrafted into the law here, from the fact that the conditions, both as to soil, climate, water, and the disposition of the people are entirely different from those of the localities where such laws are enforced; indeed it is the varying conditions of nearly every section of this Territory, as to these essentials, which renders the work of your commission in determining what laws should be made applicable, a difficult one. General principles, of course, can be made to apply all over the Territory, but when it comes to the regulation of water rights and the rights upon which irrigation is dependent in detail, those which would be highly beneficial in one section of our Territory, would doubtless be found detrimental to other sections thereof, dependent upon altitude, climate, different character of the soil, and the necessities of the people.

After the fullest consideration which the commission has been able to make of the laws of our Territory, and those of the various Western States and Territories, it is our deliberate and unanimous conclusion, that the principles governing the law of water and the rights connected therewith in force in this Territory are sufficiently just, progressive, and simple, and that the courts have sufficient jurisdiction and authority at present to fully determine and enforce the same with justice to all, and that no change of any of the principles so enforced would be advisable; and it therefore recommends that no legislation with reference to any of such principles is at present advisable.

EXPENSES OF THE COMMISSION.

The following table shows the total expenses incurred by the commission:

To P. E. Harroun, engineer for commission, four and one-third months, at $200 per month	$866.66	
To P. E. Harroun, expenses while in employ of commission	102.90	
		$969.56
To expenses of members attending the various meetings of commission:		
George Curry	47.00	
George Curry	41.00	
Antonio Joseph	54.00	
J. E. Saint	20.30	
Frank Springer	6.50	
(W. A. Hawkins made no claim.)		
		168.80

Printing and stationery:		
Daily Citizen	$6.00	
Daily Citizen	3.00	
Democrat Publishing Company	9.00	
Democrat Publishing Company	6.00	
O. A. Matson & Co. (letter book)	1.00	
		$25.00
Typewriting for commission:		
Clara H. Olseun	19.35	
Clara H. Olseun	1.40	
R. L. Hunt	50.00	
		70.75
Total expenses of commission		1,234.11

No salary or compensation of any kind to members or officers of the commission is included, and, as will be seen by consulting the items, but a very small amount was incurred for personal expenses of members in attending the meetings. The principal expense is for the employment of the engineer. Of the foregoing expenses only the sum of $360.55 has been paid. By correspondence with the Territorial auditor it was developed that he was not satisfied as to his authority to draw warrants for the payment of the whole of the expenses of the commission. We recommend that an appropriation be made by the legislature to meet these bills.

By the foregoing statement of expenses it will be seen that work of the character already done and herein indicated as desirable for the future can be carried on with considerable economy. The total expenses so far incurred, including the employment of an engineer, is only $1,234.11.

We suggest that the work which we have recommended might be advantageously continued under the auspices of a commission something like the present one, consisting of men representing the different sections of the Territory, not confined to any political party, and serving without pay. Such commission to be authorized to employ a competent hydraulic engineer to make annual investigations, and reports to be submitted to each succeeding legislature. The expenses to be incurred by the commission to be limited to a definite amount and fixed by appropriation. In this way, at a comparatively small expenditure, a series of reports would be produced which would be of permanent value to the Territory.

Dated December 15, 1898.

Respectfully submitted.

ANTONIO JOSEPH, *President.*
JOSEPH E. SAINT, *Secretary.*
FRANK SPRINGER,
W. A. HAWKINS,
GEORGE CURRY,
Commission.

The legislative assembly, on March 16, passed the law known as the "Land bill," the following section applying to the commission of irrigation:

SEC. 34. For the purpose of facilitating the selection of lands donated to the Territory of New Mexico by the act of Congress hereinbefore referred to for the establishment of permanent water reservoirs for irrigating purposes, and for the improvement of the Rio Grande, and increasing the surface flow of water in the bed of said river, there is hereby created a commission of irrigation, to consist of five members to be appointed by the governor, with the advice of the council, to serve for two years and until their successors are appointed. Such commission shall elect from among their members a president and secretary. The members of said commission shall serve without pay or compensation. It shall be the duty of said commission to investigate and select the most suitable sites for permanent water reservoirs for irrigating purposes and for improvement of the Rio Grande, and also to designate such tracts of public land capable of irrigation from such reservoirs as would in their judgment be advisable to locate for the Territory under said act of Congress, in order to secure the benefit of the enhanced value of the lands resulting from the establishment and construction of such reservoirs, for which purposes they may employ all necessary expert assistants, and to certify the result of such investigation, selection, and designation to the commission and acting under said act of Congress for the selection of the lands donated thereby. Said commission shall also, at least thirty days before the meeting of the legislature, make a report to the governor embracing all available information concerning the best method for improving the Rio Grande and increasing the surface flow of the water in the bed of the said river. Also concerning the subject of irrigation and water supply, the quantity of land in the Territory cultivated by means of irrigation, the extent of present and proposed system of storage reservoirs, the conditions existing in different parts of the Territory with reference to irrigation and water rights, and such other facts as they may deem proper, together with recommendations as to needed legislation on any of such subjects.

The necessary expenses incurred by the commission, to be certified by the secretary thereof and approved by the governor, shall be paid out of the proceeds of the land sold under this act which are credited to the fund for the establishment of permanent water reservoirs for irrigating purposes and the improvement of the Rio Grande: *Provided*, That the expenses provided for in this section shall not exceed fifteen hundred dollars for each year.

Under the foregoing section the commission was duly appointed, consisting of Hon. G. A. Richardson, Hon. Frank Springer, Hon. W. A. Hawkins, Hon. Pedro Sanchez, Hon. Levi A. Hughes.

The organization was perfected by the election of Hon. G. A. Richardson, of Roswell, N. Mex., as president, and Hon. Levi A. Hughes, of Santa Fe, N. Mex., as secretary.

I regard this as one of the most important boards in the Territory, and its work can not help but result in rendering great assistance toward promoting the interests of irrigation in New Mexico, besides the great good and benefits derived by the school lands donated by Congress.

MONEY IN IRRIGATION.

The improved systems of irrigation upon which New Mexico has to depend for the multiplication of her useful land area are developing rapidly, but there are still many opportunities for the investment of capital in irrigation projects, which can not fail under good management to make millionaires of the projectors.

There is in operation the Springer system of irrigation, with 50 miles of ditches and five reservoirs, covering 22,000 acres. The Vermejo system of irrigation, which controls 57 miles of ditches and 10 reservoirs, supplies 30,000 acres. In the northwestern portion of the Territory there are 200 miles of ditches, watering 24,000 acres. Here there are several tracts of fertile soil, accessible to streams which will afford an ample water supply, awaiting the attention of moneyed men. Also extensive ditch systems are in operation in the Mimbres region of Grant County.

The irrigation projects noted above are in the four corners of the Territory. In the meantime, the great central portions are receiving attention, more than fifty companies having been organized for irrigation projects, and several having plants in operation, affording to the home seeker at the present time ample opportunity for settlement and reclamation.

The valley of the Rio Grande presents the most extensive field for operations of this kind, as the present narrow strip of cultivated land can be widened very materially by a proper disposition of the water which flows so abundantly from the north, and is now allowed to be wasted. A few years will find all the water now suffered uselessly to run away, utilized to the highest degree and enlarging the area of the agricultural and horticultural land to an extent almost fabulous.

Meanwhile, individual enterprise is increasing the local supplies by the erection of multitudes of windmills, pumping from artesian wells

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H. T. Brown Photo Santa Fe

RANCH AND IRRIGATION RESERVOIR.

in various parts of the Territory. These prove the existence of great bodies of water underlying a large portion of the Territory. To the settler this means much, and will add in a great measure to the future possibilities of production.

THE NORTHWEST RIVER SECTION.

The San Juan River country, in the northwestern portion of the Territory, offers a splendid opportunity, not only for the production of cereals, but also for vegetables and fruits of all kinds. The vine thrives to perfection. The valleys of the Las Animas, La Plata, and Los Linos, all tributaries to the San Juan, are also capable of rendering large amounts of produce. The valley of the Chama River, especially in its upper part from Chama, on the Denver and Rio Grande Railway, to below Tierra Amarilla, the county seat of Rio Arriba, is one of the finest valleys in the country, and highly productive. And again, the valleys of the tributaries to the Chama, the Brazos, Nutritas, Gallinas, Puerco, El Rito, Ojo Caliente, Bear Creek, and others are all highly susceptible to cultivation. The valley of the Puerco of the East, and the Rio Jemez, with its many tributaries, afford fertile lands, already for centuries under cultivation.

ADVANTAGES OF IRRIGATION.

When the Eastern farmer sees all the work entailed in laying out a wheat field for irrigation and the subsequent labor of applying the water, he is often heard to exclaim, "If all that work is necessary, I have no use for irrigation." It is useless to attempt to disguise the fact that irrigation entails much expense in the cultivation of crops. Of course, that expense varies with the kind of crop raised; but the question may be asked whether the value of the extra quantity produced is not in excess of the extra expenditure.

Let us take the case of alfalfa. The yearly expense per acre for irrigation, as has already been shown, is $2.15; but four crops of hay are raised in the year in lieu of one without irrigation, or say 3½ tons instead of 1½ tons. The farmer therefore gets an extra 2 tons of hay for an expenditure of $2.15 in water. Add $2 for the cost of harvesting these 2 tons, and you have an extra 2 tons of hay, costing $4.15, or $2.08 per ton.

In the case of wheat crop it is not easy to give exact figures, but I have no hesitation in saying that the crop will be double what it is in countries where irrigation is not practiced and where fertilizers are not used. This is due in large part to the fertilizing properties of the river water, to which reference has already been made, which insures the permanent fertility of the soil. One must also bear in mind the fact that wheat and almost all farm products are worth more in the irrigated districts of the West than they are farther east.

No farmer would consider it a waste of money to put 10 tons per acre of barnyard manure upon his land every year, even though it cost him $6. For half this expense he can, where the river water is of the same quality as that which irrigates the Mesilla Valley, not only apply fertilizers equal to the contents of 10 tons of barnyard manure, but he gives the crop the exact amount of water required for a full yield, insures it against loss by drought, and gets a better price than could be obtained elsewhere. Irrigation farming means intensive farming; and it is intensive farms which pay in the long run.

If the question is asked, as it often is, What is the most profitable product to raise in New Mexico? the answer generally made is that apples, peaches, grapes, or some fancy crop will pay the most money, and dazzling figures are given showing the number of pounds per acre and cents per pound, resulting in a rapid fortune from 40 acres of land.

THE CANADIAN RIVER SECTION.

This agricultural district lies between the Raton Mountains on the north and the Pecos River on the southwest. The Canadian flows through it for about 150 miles in a southeasterly direction to near old Fort Bascom, and from there easterly (a little north of the thirty-fifth parallel of north latitude) for about 50 miles. Most of its tributaries flow in from the west. As the western part of this entire section has a slope toward the east with a general descent to the southward, the highest localities are in the northwest corner and the lowest in the southeast, with a falling altitude of from 5,000 to 3,000 feet. Some portions of this river have a fall of 9 feet per mile. Of its tributaries, the Little Cimarron and Vermejo creeks afford considerable breadth of arable land, the former having a valley from 25 to 30 miles long and from 1 to 6 miles wide, and the Vermejo one of the same length and about 2 miles wide. Both of these valleys are very fertile, with plenty of water for irrigation. The Rayado Creek has a good valley, but it is subject to overflows. Ocate Creek Valley, formed by erosion, is also very good agricultural land. The Mora River Valley is doubtless the finest in this section. It has a length of from 60 to 70 miles and a breadth of about 4½ miles. Its upper portion, from 8 to 10 miles in length, is about 3 miles wide.

GILA AND COLORADO RIVER SECTION.

This section embraces a belt of land of from 50 to 100 miles wide along the whole of the western line of New Mexico. It is watered by the Rio Puerco of the West and the Zuni River in the north, and by the Gila and its many tributaries and the Rio San Francisco in the south. There are rich and extensive valley lands along the bottoms of these rivers, the most fertile being that of the Rio San Francisco.

NEW MEXICO SOIL.

The soils of New Mexico, as a rule, are quite different from the soils of the Eastern States and possess many advantages not possessed by the latter.

The power of the soils to produce plants depends upon many conditions, among the more important of which may be mentioned a proper control of the moisture, the climate, and the amount of available plant food present.

In regard to moisture control, soils depending on irrigation for their moisture, as do those of New Mexico, have a decided advantage over soils depending solely upon rainfall. While the valleys of New Mexico have an average annual rainfall of probably some 10 or 12 inches, and the greater part of this usually comes in the summer during the growing season, it is still quite insufficient for the needs of ordinary farm crops, which must depend for the greater part of their moisture upon irrigation. The supply of moisture to irrigated soils is under almost absolutely perfect control, provided the water supply is constant. The advantages of such a control of the moisture must be apparent to anyone.

HOW TO OBTAIN TITLE TO PUBLIC LANDS.

The following information is furnished by the register of the United States land office at Santa Fe, N. Mex.:

There are nearly 57,000,000 acres of unappropriated public land in the Territory of New Mexico. Agricultural public land is subject to entry only under the homestead and desert-land laws. The homestead laws of the United States secure to qualified persons the right to settle upon, enter, and acquire title to not exceeding 160 acres of public land by establishing and maintaining residence thereon and improving and cultivating the same for the continuous period of five years. A homestead entryman must be the head of a family or a person who has arrived at the age of 21 years and a citizen of the United States or one who has declared his intention of becoming such, and he must not be the owner of more than 160 acres of land in any State or Territory. A wife who has been divorced from her husband or deserted by him can make homestead entry. Payment of $16 fees and commissions must be paid at the time of entry, and final proof can be made at any time when five years' residence thereof and a cultivation of a portion of the land can be shown. The cost of making final proof, including publication of notice, taking testimony, and commissions, is from $14.25 to $15. A party can, at the time of making homestead entry of 160 acres, enter 160 acres under the desert-land act. He will be required to pay 25 cents per acre at the time of making the entry, after which he is required to expend $3 per acre ($1 per acre each year for three years) in labor or money in improving the land and constructing reservoirs, canals, and ditches for irrigating and reclaiming the tracts entered; and the party may make final entry at any time prior to the expiration of four years on making the required proof of reclamation, of expenditure to the aggregate amount of $3 per acre, and of the cultivation of one-eighth of the land and making a final payment of $1 per acre.

BEET SUGAR IN NEW MEXICO.

The pronounced success in beet-sugar production in the Pecos Valley has occasioned widespread popular interest in the cultivation of sugar beets throughout New Mexico.

During the past three years, from beet seed furnished by the Agricultural Department in Washington, under the direction of the College of Agriculture at Las Cruces, the better class of farmers in the Territory have been raising sugar beets with uniform success. The fact is clearly demonstrated that on all the valley lands in New Mexico, with irrigation, may be grown the finest crops of sugar beets of the most satisfactory quality for the manufacture of sugar.

It appears that beets of large size, of small sugar content, may be grown almost anywhere with the ordinary attention given to a crop of corn or potatoes; but special conditions of soil and climate seem to be necessary to produce a crop of beets rich enough in sugar to be profitable for purposes of manufacture of sugar. In determining the presence or absence of these conditions, our Territory has occasion for congratulation in the zeal and good work of the College of Agriculture at Las Cruces.

Throughout the Rio Grande Valley, from El Paso to the Colorado line, results appear to be uniformly satisfactory. In the central portion of the Territory, in the high valley region about Santa Fe, the conditions of soil and climate appear to be specially suited to this crop. Here the uniform temperature and almost perpetual sunshine during the growing season seems to develop a larger percentage of sugar in the beet than in almost any other section of the United States in which tests have been made. It appears from tests made at the experimental station last year that Santa Fe grown beets weighing over 10 pounds tested over 12 per cent sugar content, and smaller beets of less than 20 ounces contained more than 20 per cent of sugar.

The yield per acre with irrigation appears to be merely a matter of care and skill in cultivation and in handling the crop under our conditions of climate. The tendency in overirrigation is to produce a large beet of small sugar content. On the other hand, on the prevailing sandy clay soil about Santa Fe from 10 to 12 tons of small beets of large sugar content may be grown with even less water for irrigation than is usually given an average crop of corn. For sugar making the beet most desired should weigh less than 20 ounces and contain more than 15 per cent of sugar; and for the raising of this beet New Mexico has the necessary soil, sunshine, water, and cheap labor to successfully grow in almost any quantity desired. It is not alone in the production of sugar beets of superior quality that New Mexico invites the attention of the sugar-making interest in the country; her railroad facilities for delivering beets at a common point centrally located for the manufacture of sugar in the Territory are all that can be desired. Both at Santa Fe and at Albuquerque may be located sugar factories, convenient to the ample supply of good water, cheap fuel, the best of limestone in unlimited supply for factory use, and reliable local labor. The Rio Grande Valley, and especially in the neighborhood of Santa Fe, has been the home of a native population for many generations accustomed to small truck farming and gardening with irrigation, and are already skilled in the light labor required for the cultivation of the sugar beet.

It is rare indeed that all or so many of the conditions for successful beet-sugar production may be found in the same locality.

Nature has indeed been generous in endowing New Mexico in this particular interest.

CARLSBAD, N. MEX., *July 15, 1899.*

DEAR SIR: Your communication of the 1st instant duly received, and I take pleasure in giving you a concise statement in regard to the beet-sugar industry in our Territory.

The beet-sugar industry was started in the United States in the year 1887, with a production in that year of 30,000 tons of beets. From this small beginning it has rapidly advanced, especially in the last three years, bringing up the production of beets to over 1,000,000 tons, equal to over 100,000 tons of refined sugar, with factories working their full capacity daily for one hundred days during the year, this being a fair average of the length of the campaign of the numerous factories now in operation.

The State of Michigan has experienced the most rapid development, owing to the large State bounty given, and while I do not believe in State bounties, as you will see by the inclosed marked copy of my address upon the beet-sugar industry at the Trans-Mississippi Congress, recently held at Wichita, Kans., still, if other States do give these bounties, you can readily see the disadvantage it puts our Territory and other Territories and States under, where it seems impossible to get a bounty, and as long as these bounties do exist it will materially retard the development of the industry here, even if the sugar beet grows well and is of a good quality, since investors will always seek the locality offering the best inducements. The quality of the beet raised in any section of our country is not sufficiently superior to counteract the bounties paid by some of our States; hence the rapid development in the districts enjoying the fostering care of State governments. I mention all this as the principal reason why the industry has not grown in our Territory.

THE SUGAR BEET IN NEW MEXICO.

As early as 1891 it was known that sugar beets yielding a very high per cent of saccharine could be grown in New Mexico. In that year a number of samples grown in the Pecos Valley were shipped to the Department of Agriculture in Washington for analysis, and were found to contain an average of 14½ per cent of sugar, the richest beets giving 21.85 per cent.

New Mexico belongs to the section of high plateaus which, under proper cultivation, can be made to produce a phenomenally rich beet.

Experiments in sugar-beet growing continued in the Pecos Valley until 1895 with results so satisfactory that in the following year, 1896, the first sugar factory in New Mexico was built in Eddy, now Carlsbad.

The factory is now entering upon its fourth campaign. The past three campaigns have not been the financial success expected, owing to an insufficient supply of beets, due to the scarcity of farmers. The success in raising sugar beets is made in localities where the average acreage per farmer is not over 5. In Lehi, Utah, where the most continuously successful crops have been raised in the United States, the average is only 4. As an example, you can readily understand that 100 farmers cultivating 5 acres each will raise many more tons than five farmers cultivating 100 acres each. The sugar beet is rather a garden crop and requires considerable care to bring about the best results, and a man having only 5 acres is able to give the crop all the attention required, while a man cultivating 100 acres is bound to neglect the proper cultivation and care of it, at least on a large portion of the field. The beet crop repays handsomely the close, careful, and intelligent work put upon it. It is not uncommon to obtain a yield of 20 tons to the acre, although an average of 14 tons is considered exceedingly good.

The advantages of the soil of New Mexico for the growing of the sugar beet on a profitable scale surpass many localities in the United States, and under proper conditions—namely, a sufficient number of good farmers, who will not undertake too large an acreage and work wisely—I doubt very much if New Mexico has a superior anywhere, especially where irrigation can be applied. The number of days of clear weather, with good soil and an abundance of irrigating water, together with proper attention, should give a good yield every year, and our climatic conditions will give a richer beet than in the districts located outside of the arid regions, because it is well known that the sugar in the beet does not come from the soil, but from the clear atmosphere, and as we have more bright, sunny days here than, I believe, in any other sugar-beet district, our beets contain and will continue to contain a higher percentage of saccharine matter. Again, the dry fall and winter, together with the absence of hard frosts, allow the beets to remain in the ground until needed by the factory, thus doing away with the expense of siloing, necessary in Northern States.

As stated before, the sugar beet is a profitable crop for the farmer to raise. We pay $4.75 per ton for beets delivered to the factory. The freight charges are 50 cents per ton from any station on the line of our railroad. As most of our beets are delivered by rail, the farmer therefore realizes at least $4.25 per ton f. o. b. cars at his nearest station.

Contracts are made at the beginning of every planting season, thus guaranteeing a cash market to the farmer for his crop, which is in no way affected by the price of sugar or by any speculation. The cost of raising an acre of sugar beets up to harvest time should not exceed $12 per acre. The harvesting of the crop, including loading on the cars or at the company's sheds, should not cost over $1 per ton. A farmer can, therefore, realize a profit of from $15 to $35 per acre.

Lands in New Mexico are cheaper than in any other sugar-beet district, ranging from $15 to $30 per acre, which should also be an inducement to settlers to locate here.

Again, the season for planting is longer than elsewhere, extending from April 1 to July 1. This is an advantage in case of a mishap to the early planting, as it gives sufficient time for replanting in order to raise a good tonnage before the factory is ready for the beets. Our harvest commences in November. It continues, or would continue, with a full crop, until March 1, keeping the farmer busy during the months in which with other crops he is idle and when all other crops are harvested and disposed of.

The capacity of our factory is 200 tons of beets per day, and capable of producing 4,000,000 pounds of white granulated sugar. It is so constructed that it can easily be enlarged when necessary.

A beet-sugar factory is of lasting value to a new and growing community. Our factory during a four months' run pays out in wages about $25,000, to farmers for beets over $85,000, to say nothing of the amounts paid for freight, coal, and other items of expense which put money in circulation.

Trusting that this information will enable you to sufficiently cover the subject of the sugar-beet industry of New Mexico, and offering you any further data desired, I am,

Very respectfully,

ARTHUR S. GOETZ,
Manager.

Hon. MIGUEL A. OTERO,
Santa Fe, N. Mex.

THE CULTURE OF GRAPES.

Rio Grande Valley is well adapted to the cultivation of grapes. The principal kind now existing is the Mission grape, which was introduced by the Catholic missionaries as early as 1711, and has ever since proved to be the standard variety in this Territory, on account of the richness of its flavor, and the amount of sugar it contains. It makes an excellent red or white wine, and is equally valuable for the market. From experiments we know also that our Mission grape compares favorably with the French grapes for the manufacture of champagne.

With skill and good management it can not be surpassed. The cultivation of the vine has been practically taught to the natives, and their methods have proved ever since fully successful as to the covering, uncovering, cleaning, and pruning of vines.

There is no doubt that the soil of this Territory is splendidly adapted to the cultivation of the grape. Of late years a number of new varieties of vines have been introduced by various parties, and are doing well; nevertheless, they require the same methods of cultivation as does the Mission grape.

One acre, or 1,062 vines, will yield each year about 12,744 pounds of grapes, or 910 gallons of wine. This is considered a moderate estimate.

THE CULTIVATION OF THE GRAPE IN THE MESILLA VALLEY.

Among the natives the grape is the principal fruit raised in the valley, although many of the American farmers own good vineyards. The former grow the Mission grape almost exclusively, whereas the latter mostly raise the Muscat of Alexandria, Black Hamburg, Gros Colmar, Malvoisie, and other so-called California varieties, all of which thrive perfectly.

The grapes begin to ripen toward the end of July, and the shipping season usually lasts till about the last week in October. A great deal of wine is made, but it is usually more profitable to sell the fruit for table use. During the season large quantities are shipped, mostly in 10-pound baskets, to all the towns in New Mexico, and to many of the markets of Arizona, Colorado, Texas, Louisiana, etc.

The vineyards are usually started by putting a couple of cuttings during March every 8 feet each way, although many of the older vineyards are set at 6 feet apart. When the cuttings begin to grow, the weaker one is pulled out and the stronger left. The object of setting two cuttings is to make sure of one growing. At 8 feet apart each way 680 vines go to the acre, and this seems a better way or distance, than 6 feet apart, as it gives more room for cultivation. Some of the most progressive horticulturists consider that the rows 10 feet apart and the vines 8 feet apart in the row (544 vines to the acre) is still better.

What is known as the "stump" method of training and pruning is followed. This consists in staking the vine during the first two years, so as to form a straight, upright trunk. The first year the vine is allowed to grow as it will, when it is cut back to its strongest eye. The second year all the buds are rubbed off to the height of 15 or 18 inches, and at the next pruning the cane is cut back to 18 or 20 inches, leaving two or three buds as a basis for the future head. From now the "short spur" system of pruning is adopted; that is, the canes are all allowed to grow as they please during the summer, and at the regular pruning in March these canes are cut back to one or two eyes, from which spring the bearing canes. Of course as the vines get old too many spurs are made, and many of them too long, when some of them must be cut out altogether. Under this system most of the grapes seem to thrive very well, although there is a great deal of careless staking and training in the early life of the vines, resulting in difficult pruning later on, and many of the bunches get spoiled by the mud, owing to the want of good, straight, strong trunks to hold up the fruit.

There is considerable difference of opinion as to whether the grapevines need to be hilled up during the winter in this valley. The old custom among the natives has been to cover the vines with hills of earth in the month of November and not to uncover until the following March, when it is time to prune. The mounds of earth are raised sufficiently high to just cover the buds which are to be left for the coming year. No irrigation is given during the winter, or until after pruning.

The object of this hilling up is not to protect the vines so much from the winter cold as from the cold, drying winds, which cause the trunk to crack and the canes to winterkill. It is, however, claimed by those who have tried it in recent years that if the vineyards be irrigated during the winter these dry, cold winds do no harm and the vines thrive better. Pruning is usually done in March, but earlier grapes are produced when the vines are pruned in the fall.

Undoubtedly much better results would be obtained if the vines were wider apart, better trained, and the surface soil kept well pulverized throughout the year. People taking up this industry would be well repaid for the care given their vineyards in the sale of their grapes at good prices—soon becoming independent.

VEGETABLES.

Most every kind of vegetable can be raised in this Territory except, perhaps, the Irish potato in some localities. The potato is a native of the mountain country in its wild state, and in the central and western parts of Socorro County, along the northern line of Colfax County, and extending southward for 100 miles along the base of the mountains, the finest potatoes in the world are grown. The raising of this crop requires very little work, and the yield is very large.

Turnips, carrots, ruta-bagas, and cabbage all do well. Of the latter, it is no uncommon thing to see heads weighing from 20 to 30 pounds, and occasionally one that weighs several pounds more. Cabbages are worth from 1 to 5 cents per pound, depending upon the season of the year when they are sold. Onions excel in size and flavor, and are a good paying crop.

FRUITS.

The fruit industry is coming to the front rapidly, and people coming to this Territory to settle learn that fine fruit can be produced here with much less trouble than in the States. There are many magnificent orchards in this Territory. The size and variety of the fruits raised would astonish and delight our Eastern orchardists. A large evaporator is now being built in Santa Fe.

Apples flourish luxuriantly. Pears, quinces, and plums appear to be in their native clime. The strawberry, currant, gooseberry, raspberry, and blackberry all thrive vigorously. The valley along the Rio Grande appears to be particularly adapted to all kinds of fruits, although all sections of New Mexico susceptible of cultivation will produce the finest variety of fruits, and most abundantly.

CEREALS.

Wheat, in quality, size, and quantity, is not excelled anywhere in the United States. Corn does well, and oats grow luxuriantly, but are generally cut green and fed in the straw.

TIMBER.

Both hard and soft pine, spruce, oak, cedar, walnut, mountain ash, quaking asp, box elder, cottonwood, etc., are all found in great abundance.

LUMBER INDUSTRY.

Extensive pine forests in New Mexico make the lumber industry here an important one. All over the Territory individuals are erecting sawmills, whose product is demanded and utilized by the people who use lumber for building purposes in the place of the ancient adobe. The profits of lumbering are large.

HORTICULTURE.

The first annual report of the New Mexico Horticultural Society, covering the year 1897, has just been issued. It contains an account of the fruit exhibit held last year in the city of Santa Fe and the efforts of the society to awaken an interest in horticulture and stimulate, by offering suitable prizes, the production of valuable varieties of fruit.

The exhibit referred to was highly successful. It brought together a display which in many respects was remarkable. It showed that New Mexico, in the variety of its fruit products, having regard to quality as well as species, stands in the foremost rank among fruit-producing parts of the United States. Some States may produce certain species of fruit of superior quality to any yet produced in New Mexico, but the same States may fall short in respect of certain other species in which New Mexico may excel; so that it is in the uniformly high grade of its fruits that New Mexico surpasses the other parts of the Union.

Horticulture is a business to which the people of New Mexico may well give great attention. It would be practicable for them to supply large quantities of excellent fruit to the markets of the Mississippi Valley and the lake region. The climate of their Territory will admit

NEW MEXICO APPLES.

of placing the products of their orchards and vineyards in the market at an earlier date than many competitive places, and care and experience in cultivation would in time enable them to produce varieties of a very superior grade.

Practically all the irrigated valleys of the Territory are adapted to fruit growing. The soil of the Rio Grande and Pecos valleys, for instance, is highly fertile, and irrigation has demonstrated its adaptability to both viticulture and horticulture. A good quality of wine could be produced by care in selecting the proper species of grapes. This has already been shown by what has been achieved in that direction. Altogether, the New Mexico Horticultural Society has an excellent opportunity for the accomplishment of a work of enormous value to the Territory.

Our horticultural fair was pronounced by all the most comprehensive and evenly balanced exhibition of fruits of all kinds ever seen, and it has stamped New Mexico as the most perfect fruit-growing section of the world, and while there are many exhibitions on a much larger scale and some which might excel in some particular fruit, there is none which includes such a splendid showing of fruits of all kinds. There is one very noticeable thing about the fruit of New Mexico, and that is it is entirely free from insects of all kinds, is firm, and of very fine flavor.

During the course of this fair it was visited by those familiar with the American Institute fairs in New York, with State fairs of the East, as well as those of Colorado and California, and all concurred that the fruit excelled anything seen before at similar fairs.

Among the exhibits were 246 entries of apples, 34 of crab apples, 125 of pears, 58 of peaches, 108 of plums, 13 of apricots, 37 of nectarines, 15 of quinces, 36 of grapes, 12 of nuts, etc.

When the premium list was published the criticism was made that the number of varieties of fruits required for the first premiums were so large that no entries of that character could be made. The schedule called for 40 varieties of apples, 40 of pears, 20 of plums, 5 of apricots, 5 of nectarines, etc. The result showed that our horticulturists are raising a much larger variety of fruits than was generally supposed, as in all the above cases the required number was actually exceeded.

Among the notable specimens were the following: Largest apple, weight, 23 ounces; circumference, 15¾ inches. Red Beitigheimer, weight, 18¼ ounces. Gravenstein, 14 ounces and 13⅜ inches. Russet, 13½ ounces and 13½ inches, etc.

Among the pears a Bartlett weighing 18½ ounces, and an Idaho weighing 18 ounces were noticed.

The Agricultural College (of New Mexico) exhibit showed a peach weighing 10¼ ounces, and a Pride of the Rio Grande weighed 10½ ounces.

A bunch of Muscat grapes, grown as far north as Espanola, weighed 25 ounces, though not ripe; and Stanwick nectarines from the same locality reached 5¾ ounces in weight.

No premiums were offered for vegetables and no provision made for their exhibition, but so many excellent specimens were brought in voluntarily that it is evident that arrangements should be made to include them as well as floral displays at subsequent exhibitions.

The horticultural fair which has just closed here was a great success from every point.

MEMBERSHIP AND INCOME OF THE NEW MEXICO HORTICULTURAL SOCIETY, INCORPORATED AS A TERRITORIAL INSTITUTION IN 1886.

The number of life members is 17; of annual members, 166.

As life membership practically cuts off future income, the society has decided to lay aside half of the sum received from life members as a permanent fund for the purchase of land or erection of buildings in the future.

The total receipts of the society during the past year were $712.40.

Life members	$150.00
Annual members	166.00
Admissions	169.45
Subscriptions	67.50
Donations	27.85
Premium, less expense	131.60
Total	712.40

AGRICULTURE—HORTICULTURE.

[George Vestal, agriculturist and horticulturist, New Mexico Agricultural College Experiment Station.]

AGRICULTURE.

Our agriculture is carried on by the aid of irrigation, and when water is plentiful abundant crops are produced. In San Juan, Rio Grande, Pecos Valley, and other parts of the Territory modern farms exist, and when well managed are profitable. When a system of storing flood waters is put in operation immense areas will be put into cultivation. Alfalfa is the principal crop raised, producing three to four cuttings each season, yielding 3 to 5 tons of hay. It is an excellent feed, and most work horses receive no other at any time of the year, and remain in good condition even when continually worked. Wheat is largely raised, principally by the Mexicans. Rye and barley also do well. The experiments carried on with sugar beets at this station and by farmers in different parts of the Territory during the past year conclusively prove that beets of the highest quality can be produced in nearly every section of the Territory. Beets were produced which showed 10 to 22 per cent sucrose, great numbers of the samples running 14 to 17 per cent. The cultivation of the sugar beet is susceptible of a great development. Kaffir corn has proved to be a good crop in this climate and is largely cultivated in some sections. There are many crops not now cultivated which would prove profitable if attention were directed to them. Many sections of New Mexico, by reason of altitude or other conditions, have climates peculiarly their own, which would prove well adapted to some particular crop which would suggest itself to any live farmer. One great advantage the farmer has here over the Eastern farmer is the ease by which he can preserve his crops. The dry, pure air retards decay to a great extent, and the absence of heavy dews and rains enables him to harvest and store his crops with but little waste.

HORTICULTURE.

It is in horticulture that New Mexico may expect her greatest development. The soil, when properly cultivated and irrigated, and the climate seem to be peculiarly adapted to the production of fine fruit. The soil is supplied with such essential elements for tree growth as lime, potash, etc., in such abundance as to be practically inexhaustible. These fertilizers form a large part of the expense bill of the fruit grower of the humid region. Our sunny climate produces a large, fine-flavored, high-colored, attractive-looking fruit, which greatly adds to its selling qualities.

The fruit industry of the Territory is still undeveloped. True, fruit growing has been largely carried on in San Juan County, the Rio Grande, and Pecos Valley, and large quantities of fruit have been shipped to near-by and distant markets, successfully competing with fruit from other States; but the large area comprising the small valleys, mesas, and level tracts, when supplied with irrigating waters, will produce such fruits as their climates will mature in larger quantities and to a greater perfection than any other part of the United States.

VEGETABLES.

Vegetables of all kinds reach their highest development in the parts of the Territory having climates favorable to their growth, and when properly cultivated yield enormously. The quality of our fruits and vegetables will compare favorably with those produced anywhere. The celery of Bernalillo and Chaves counties has gained a wide reputation for its crispness and fine flavor, and is quite largely shipped to adjoining States. The cabbage of northern New Mexico has been known for years to be as fine as can be produced. The tomatoes of the Mesilla Valley, when canned, are superior to any yet brought to this market, and the demand for them is rapidly increasing.

TEN ACRES ENOUGH.

[W. S. Burke.]

WHAT A MAN CAN DO WITH A SMALL TRACT OF LAND UNDER IRRIGATION.

Sweet potatoes of most excellent quality yield abundantly in all the valleys of the central and southern portions of the Territory, and constitute one of the best crops that the farmer can raise, because they enable him to realize a good return for his season's work from a very small tract of land, which is an important consideration to a farmer anywhere, but especially so to one in an irrigation country. The soil and climate of this country seem to be peculiarly adapted to the growth of the sweet potato: the quality of the product is fully equal to that of the famous potatoes of New Jersey, and a fair average crop will give from 900 to 1,000 bushels to the acre with proper cultivation. They never sell for less in the fall than $1 a bushel, and those that are kept into the winter usually bring as much as $2. From this it will be seen that 1 acre cultivated to sweet potatoes in New Mexico will yield the farmer as much money as he can hope to realize in a good year from 80 acres of corn or wheat in Kansas or Nebraska, and since the results are to be measured by dollars and not by acres, it will be apparent to anyone that the irrigation farmer, although he may not be able to cultivate fields as broad as those of his neighbor in the rain belt, has a better prospect of success and a decidedly better chance of a bank account at the end of the year.

The onion is another product that seems to be peculiarly adapted to this section of the country. The large white Spanish onion, which grows to greater perfection in the Southwest than anywhere else in the United States, affords one of the most profitable crops that can be grown in this Territory, and requires irrigation to bring it to perfection. On account of its beautiful silvery color and its peculiar mild flavor, this onion finds ready sale in any part of the country, and always brings the highest market price. The yield is about 500 bushels to the acre, under proper cultivation, and the price at home ranges from $1 to $2.50 per bushel.

Celery and asparagus are also articles which are especially adapted to the soil and climate of this country, and attain here a degree of excellence rarely found in such articles grown elsewhere.

The New Mexico celery is far superior to that grown in California, and is pronounced by all who try it fully equal in all respects to the famous Kalamazoo product, which is noted throughout the country for its superiority.

And when it comes to asparagus New Mexico can fairly claim to "beat the world," for nowhere else on the American continent is there raised asparagus which can at all compare with that grown in the valley of central and southern New Mexico. In many places there are large quantities of saltpeter in the soil (the American settlers call it "alkali," because it comes to the surface after a rain and makes the ground white, causing it to resemble the alkali of the north). This article, which is deleterious to many kind of vegetables, is the favorite food of asparagus and obviates the necessity of applying salt to the ground, as has been done wherever this vegetable is grown in the Eastern or Middle States. It also causes the plant to attain a degree of excellence and flavor in this country which is unknown elsewhere. During April and May, the months when the cutting is done, the shoots will attain, under favorable conditions, a growth of about 6 inches in a day, every particle of which is edible; there is no woody portion to be thrown away; the whole stock is as soft and tender as green peas, and the flavor is proportionately superior. Sample lots of New Mexico asparagus have been sent to many parts of the country, and the verdict is everywhere the same, "The best I ever saw." It is not only better than that grown in the East, but is so much better that its superiority is noticeable at once, even to the casual observer. Actual experience has shown that it will bear shipping to Portland, Me., and that is as far away from New Mexico as you can get in the United States; so the whole country is open to us as a market, and that the article can be sold wherever it is introduced goes without saying—it will sell itself.

An asparagus bed of 1 acre will yield, after the third year, about 200 pounds a day for sixty days, which is as long as it is wise to cut it; this will bring an average of 10 cents a pound during the season. An acre in sweet potatoes will yield 900 bushels, worth $1 a bushel at least, as soon as they are dug. An acre of onions will yield 500 bushels, worth never less than $500, and an acre of celery can be relied upon to bring as least $600. A man needs 2 acres in alfalfa and 2 in corn or oats for his horse and cow and 2 acres for house lot, orchard, and kitchen garden. That makes 10 acres in all, which is as much as any man needs to farm for profit, and is fully as much as the most industrious man can cultivate properly. There is an abundance of good land for such purposes to be had in all parts of the Territory. Take, for example, the Rio Grande Valley, the oldest portion of the Territory in point of settlement, a section that has been settled for more than three hundred years, and yet not one-fourth of the available land in this section of the country is under cultivation at the present time. Beginning a little above Bernalillo and going down to a point a little below San Marcial, we have one of the most desirable and fruitful sections of the famous valley and lying right in what may properly be called the agricultural center of New Mexico, a district of about 150 miles in length and with an average width of about 5 miles, embracing 750 sections, or 480,000 acres; and yet a careful writer, who has traveled frequently over the district of country in question, says: "If we concede that one-tenth of the land is now under cultivation, we are making a very liberal estimate." But if we should almost double this very liberal estimate, we should still have in the district referred to about 400,000 acres of unused land—enough to furnish homes and profitable employment to 400,000 families, or more than the entire present population of the Territory. And there is no waste land in this district named; it is all arable and all tillable and needs only the application of water to make it as productive as the best land in any part of the world. The Rio Grande carries water enough for the cultivation of the whole of this tract without encroaching in the least upon the rights of those who live farther down the river. True, there would not be water enough under the system of irrigation at present in use—a system that was adopted three hundred years ago, when economy in the use of water was something wholly unknown and totally unnecessary, and under which the water wasted is at least five times as much in quantity as the water used—but it is not to be supposed that this system will continue many years longer. Modern systems of irrigation are being introduced in all other sections of the country where farming is done by irrigation. New Mexico will not remain long behind the times. The system practiced in California and Colorado, and in the Pecos Valley in our own Territory, which puts the water upon the cultivated fields and not upon the waste places and the wagon roads, will soon be adopted in this section, and then, as we have said, the Rio Grande will furnish water enough to irrigate all the lands in its valley and will support more people than are now in the whole Territory.

A country like New Mexico, where all kinds of fruit and vegetables can be grown to such perfection and in such profusion, is the place for canning factories, and it is safe to say that there is hardly a settlement in the Territory in which there is not at the present time a good opening for an establishment of this kind. The genial climate, the long seasons, the almost perpetual sunshine, and the rich soil, which is further enriched at every irrigation by the valuable sediment which is brought down from the mountains, all combine to produce conditions which are not surpassed in any part of the world for the successful growing of garden vegetables, and the yield of these is so enormous that it would hardly be believed by anyone who does not possess a practical knowledge of the subject. There is a reliable home demand for all such products, and everything of that sort that can be grown here will be needed to supply the wants of our own people; but there are comparatively only a few vegetables that can be kept for winter use without preserving or canning. It is a well-known fact that the people who live in the cattle and sheep camps and the mining camps and villages of the West are the largest consumers of canned goods in the world; many of them practically live out of tin cans. The area of country in the Southwest that can be used for mining and grazing purposes is so much greater than the area that can be cultivated, and such a great number of people must always find employment in those occupations, that all the vegetable products of the country will always find a ready market at home. But, as is well known, it is necessary for the greater part of these products to be canned in order to be utilized. At present we are not producing one-fourth of the vegetables we consume for want of proper facilities for preparing them for market, and while we are able to produce more and better vegetables than any other section of the United States, our people are fed mainly upon the inferior products of other sections. If this condition of things had to be permanent it would be rather discouraging; but it will not continue very much longer; the good openings that are presented in all parts of the Territory for the establishment of canning factories will soon be taken advantage of by men who are looking for good business opportunities. The only reason why such industries have not already been established in all sections of the Territory is the fact that our present careless and haphazard system of irrigation renders the supply uncertain; but given a reliable modern system, such as will soon be introduced in every section where there are intelligent, progressive people, and it will be but a little while before we have canning factories enough established in the Territory to take care of all the vegetables we can raise, and the large sums that we now send abroad every year to pay for stuff that we buy from other sections will be kept at home for the benefit of our own people.

With respect to canned goods. woolen goods, and all other articles which can be manufactured successfully here, we will not only have the advantage of a market at home for all we can produce, but the Territory is so far away from any other manufacturing center that the cost of transportation on goods shipped in from abroad is great enough to give the home manufacturer a good "protective tariff" which no Congress can repeal.

CANAIGRE.

An industry that is exclusively adapted to the arid Southwest, and especially adapted to New Mexico, is the production of the canaigre plant.

The following extract from Bulletin No. 21 of the Arizona Experiment Station will give the information asked by many as to whether canaigre may be grown in their respective localities:

> The best conditions for the growth of canaigre are a cool but not freezing climate, a moderate amount of moisture, sandy, fertile soil, and probably also a sunny and arid atmosphere. These conditions are nowhere combined more perfectly or for a longer period of the year than during the six or seven cooler months in the arid Southwest. * * * A mean temperature of about 70° or less is required for the growth of canaigre. Above this, even though there be abundant rain, as was the case in August, the roots will not do more than sprout feebly, and various attempts to make them grow in warm weather have failed. This seems to limit canaigre to the Southwest, for nowhere else, excepting possibly in some of the Southern States, is there so long a period of mild weather. It has been grown experimentally in Florida with some success, but in the Northern States the interval between the severe cold of winter and the extreme heat of summer is too short to allow of much root development. The sprouting of the roots in August, under the influence of rain, suggests that, in the culture of canaigre, one or two summers would prepare the plant to grow more promptly on the advent of cool weather.
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> The growing plant will stand a good deal of cold. When frosted the leaves lie prostrate on the ground, but immediately regain position when thawed out by the sun. The root also will endure freezing. It has been left in the ground all winter 60 miles north of New York City, subjected to a temperature as low as 15° below zero, without injury. At Lincoln, Nebr., the roots stood a very severe winter without any damage whatever. At Peoria, Ill., plantings made in 1892 were still alive in 1895, and similar results are noted at Washington, D. C., and Garden City, Kans. The new root development, however, is stated in a number of cases to be insignificant under such conditions
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> As to locality, canaigre is found more commonly in sandy washes where water is more abundant. With irrigation it will make a good growth in any fertile, tillable ground, but the influence of soil conditions on actual production has been little studied. It seems to stand considerable alkali, and is even reported in the salt-grass meadows of Tia Juana Valley, near San Diego, Cal.
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> The tanning materials in canaigre remain pretty constant throughout the growing season, with, however, a small but distinct increase after the plants become established in vigorous growth. The amount of this increase in mature roots from year to year was further shown by taking four samples of wild roots, comprising every age up to about 5 years, dividing the samples as nearly as possible into successive years' growth and analyzing. It was found that the average increase of tanning materials from year to year, in ten instances, was 1.64 per cent in water-free material. In one set of cultivated samples the averages of the first and second year's roots differed 2.64 per cent. This indicates a small but constant

increase in the per cent of tanning materials from year to year, but holds true only so long as the roots retain their vitality. When they die the tanning substances quickly disappear. Although the percentage does not increase remarkably from year to year, the roots themselves become larger, so that the actual amount of tanning materials is much greater.

A factory for extracting tannin from canaigre is located at Deming, 230 miles from Albuquerque, and directly tributary to El Paso; but arrangements are made to start a tannin factory at San Antonio, N. Mex. Parties interested have been very busy in San Antonio for the past several weeks taking options on land, selecting a site for the factory, and perfecting other arrangements attendant upon immediate construction.

The factory at Deming has been depending upon its supply of canaigre from the wild root which grows in the greatest abundance in southern New Mexico, and is gathered by the natives and shipped. Now, however, it is proposed to cultivate the plant, and already options have been secured on 3,000 acres in the immediate vicinity of San Antonio, with 2,000 acres more to follow, thus making 5,000 acres altogether. This immense tract of land will be placed under a complete system of irrigation, for, although the canaigre plant grows wild in the most arid regions, it takes five years to assume mature growth, while under irrigation a good crop can be produced annually. Canaigre grows only six months in the year, and, strange to say, this is during the winter season from October to April. This plant has been used by the Mexicans for centuries in tanning their leather, but always in a dry form. Now, however, there has been discovered a process by which the acid can be extracted from the green root so that a new supply can be taken from the fields every day and converted into tannic acid, thus making the root worth from $80 to $90 per ton in any market.

San Antonio was selected as the most suitable place on account of its irrigating facilities and its rich coal fields. The coal mines of the Hilton Mercantile Company lie not very far distant, and the fuel can be had at a very nominal rate. The factory will employ 50 or 60 men, while the cultivation of the plant will give work to an additional force of 250 men. The capitalists who are interested, it is said, will spend a quarter of a million of dollars before they get the factory in running order. This will undoubtedly make it one of the most important enterprises in the Territory, and will mean a great era of prosperity for the San Antonio Valley.

CELERY PRODUCTION.

A product in which the Pecos Valley is gaining special distinction is its celery. It is an industry which is developing rapidly and constantly acquiring new markets. The most extensive production of this delicacy is near Roswell, on the Spring Brook Celery farm. The farm is watered by a great spring of water bubbling from mother earth, which, combined with the continual sunshine peculiar to the Pecos Valley and the saline nature of the soil, makes a combination for growing a high grade of celery not possessed by any other country. The constant sunshine, which blushes the apple, crimsons the cherry, ripens the golden grain, colors the flowers, and flavors the fruits with the choicest essence of nature's brewing, is no less potent in storing up those essential qualities in celery that raise it to a standard excellence, surpassed by none, equaled by few, and may be well said to bear the same relation to the celery trade as gold to the monetary system. The celery raised in the Pecos Valley is pronounced by those qualified to judge superior to that raised anywhere else in the United States, and the fact that it leads all competitors in every market it has reached would seem to verify the assertion, particularly when it is known that it came in competition with the product of the most famous celery farms in the whole country. The soil of the valley seems to possess to a marked degree the constituents which impart to this table delicacy the peculiar nutty flavor so much sought after by epicures. The Spring Brook farm has proven a full success, both in the production of the vegetable and in marketing it to financial advantage. The Roswell Register notes this fact in a recent paragraph, which says:

> W. M. Farmer has just received returns from his last shipment of celery. The total figures show that, in addition to supplying the local demand, he shipped out 88,815 pounds. The express bill on this was $1,389.80. The gross income realized at the farm for the crop of 20 acres was over $6,000.

The planting on this farm has been increased to 25 acres this season, while all over the valley farmers are putting in beds of greater or less extent.

FANCY TOBACCO SEED TO BE DISTRIBUTED AMONG NEW MEXICAN FARMERS BY THE COMMERCIAL CLUB OF ALBUQUERQUE.

The following letters relative to the culture of tobacco have been received by the Commercial Club of Albuquerque, and the seed mentioned is now at the club rooms awaiting distribution. The seed will be issued in small quantities to all farmers who wish to raise tobacco and who will agree to give the intelligent care and attention necessary to insure successful cultivation. The letters are self-explanatory:

CHICAGO, ILL., *December 22, 1897.*

COMMERCIAL CLUB, *Albuquerque, N. Mex.*

GENTLEMEN: Not long ago Mr. Chambers, general freight agent, sent me a sample of the tobacco raised in the vicinity of Albuquerque, which I sent to an expert grower in Virginia, who reports on same as follows:

"The tobacco you sent to me has an excellent flavor, but owing to the fact that it was cut before being thoroughly ripe, it cured up green. In as dry a climate as New Mexico, with the proper kind of seed to begin with, tobacco ought to cure a splendid bright-red color without using any fire at all. But in order to get the right color and flavor, two things are necessary—the right kind of seed, and allowing the plant to become thoroughly ripe.

"In New Mexico the plant bed should be made in February, and should be from 30 to 50 yards square, according to the size of the crop contemplated, and should be irrigated. The plant bed should be gotten in thorough order and the seed should be sown in it by the 1st of March.

"The plant should be ready to set out in June, and, if the ground is in good order, one rain or one irrigation will make the crop. Tobacco requires less water than any other plant I know of. The great trouble with us is that we have too much rain, which makes it cabbage or bunch up. If we could have moisture just when we wanted it, and not too much, and such soil as you have in the West, we would make the finest tobacco in the world.

"Hoping to hear from you soon, I remain, your friend,

"W. G. PILKINGTON."

Comment is unnecessary. Tobacco is one of the most important and most profitable of crops. On the strength of the opinion above given, by one qualified by long experience as a grower and manufacturer to speak knowingly, I would warmly advocate your body's taking up the matter of careful experimentation in tobacco culture, with a view to its becoming established on a sound basis as one of New Mexico's products. I will be glad to render any assistance in my power to that end. I have written for information as to the best seed to use.

Very respectfully,

JAMES A. DAVIS,
Industrial Commissioner, A., T. and S. F. Rwy. Co., Chicago, Ill.

ALFALFA HAY.

The remarkable development in the West of the species of hay known as alfalfa, within the past few years, can not fail to interest the farmer immigrant. Special attention is now given here to the cultivation of that crop, and it has proved a great success. It is a plant of wonderful power of growth. As a rule, three cuttings a season are made in the North and five in the South, which will average for the season one and a half tons per acre to each cutting.

It is a species of lucern, a perennial, an enormously prolific grower, containing a very high percentage of nutritive matter, and is of such a hardy, aggressive character that once it is firmly rooted it requires little attention other than an occasional irrigation and harvesting of the heavy crop of hay which it produces. It is the fodder plant of this region and the one factor that will permit stock raising and fattening to be successfully carried on upon modern scientific principles, in what has heretofore been known as the "arid region."

Formerly, from the want of some cheap fattening food, the far West was entirely dependent upon the agricultural States for its fattened beef. Cattle were shipped from New Mexico to Kansas or Missouri, fed there on corn, and then sent back as beef in refrigerator cars, to be eaten, perhaps, close to the place in New Mexico from which a few months previously, the thin ox had been shipped, thus necessitating a double journey of 600 to 1,000 miles, and an additional expense of 4 to 6 cents per pound for carriage alone. To-day a good percentage of the beef eaten in New Mexico is fattened here on alfalfa, and in the future, as more land is placed under irrigation, the proportion will be largely increased, for the profits are necessarily large, the cost of the double journey of the corn-fed beef being so greatly in favor of the New Mexico farmer.

Another, and perhaps a greater, revolution is being brought about by alfalfa, enabling New Mexico farmers to breed high-grade and thoroughbred bulls. Formerly ranchmen were obliged to go to the Middle States for the large number of high-class bulls they required for the improvement of their herds. The acclimatization of these upon the Western plains was accomplished by enormous loss, chiefly owing to the great difference in climate and pasture. To-day, with the aid of alfalfa, breeding such cattle is fast becoming an important industry in New Mexico. The climate here being the same and the grass similar to that upon the great cattle ranges, the mortality during acclimatization is slight, and cattlemen willingly give a higher price for a New Mexico than for an Eastern bred bull.

Another important consideration to the advantage of this grass is that as cattle can largely depend upon the nutritious native grasses during the winter, the New Mexico farmer has three great factors in his favor: First, a higher value for what he raises; second, less cost of production; and third, a practically unlimited market at his door, with no heavy freight charges to pay when shipping to the buyer—a combination of advantages that must soon drive his Eastern competitor out of the market, and leave alone in his hands a large and profitable business.

For all these reasons there will, for a long time to come, be an immense demand for alfalfa for cattle-raising purposes.

The same conditions apply to hog raising, and with equal force. It will doubtless sound strangely to the Eastern farmer to be be told that hogs are here fattened for the market on alfalfa hay, but it is neverthe-

ALFALFA FIELD IN BLOOM.

less true, and the meat thus produced is fully equal to, if not better than, corn-fattened pork. It seems to be as good for hogs as for cattle. It is becoming the rule here, and such hogs command high prices, as "hog cholera" is not known in these mesa regions.

Alfalfa is a perennial plant, and when once sown will last for many years. It is difficult to say how long it is profitable to keep the same field in alfalfa, but there are many instances of land that has borne crops of alfalfa for twenty years, and even for a longer period, without showing any signs of depreciation.

The seed is usually sown in February, on land already seeded to wheat, and oats are also frequently sown with the alfalfa in order to act as a shade to the young plants. But quite as good results have been obtained by sowing the alfalfa alone. The seed may also be put in the ground at the end of September. The young plants will soon appear above the ground and will continue to grow, in roots if not in leaf, during the greater part of the winter.

The cost of seeding an acre of land with alfalfa, from an estimate made in the Mesilla Valley, is as follows:

Plowing and harrowing	$5.00
Drilling seed	1.25
Making borders for irrigation	2.50
Twenty-five pounds of seed, at 8 cents	2.00
Total	10.75

The annual expense will be:

Cutting, raking, gathering, and stacking 3½ tons, at $1	$3.50
Irrigating six times, at 15 cents	.90
Water per acre	.75
Cleaning lateral ditches	.50
Baling 3½ tons, at $1.35	4.72
Hauling to railroad 3½ tons	3.50
Total	13.87

This makes the cost of the hay in the stack $1.60 per ton and not quite $4 baled and delivered on cars. Hitherto most of the alfalfa has been sold as hay, but much better returns are obtained by feeding it to live stock, for raising hogs, and dairy produce, which undoubtedly constitute the best products for the farmer. Alfalfa usually gives four cuttings in the year, but with care and plenty of water it would be possible to get five cuttings, yielding altogether five or six tons of hay. Owing, however, to a somewhat slovenly method of farming and the occasional lack of water, the writer places the average yield in the valley at 3½ tons per acre.

MAKES GOOD PORK.

Wherever alfalfa can be raised the best as well as the cheapest pork and bacon can be produced, for alfalfa gives growth to the muscle, making the lean meat that is the best and sells the best. And while growing in the alfalfa fields the hogs get the exercise needed for healthy development. Wherever it will grow it may be made a highly profitable crop, and one that will get out of the swine industry its biggest possible results.

RANGE GRASSES.

There are about thirteen or fourteen different plants indigenous to New Mexico that, curing on the stalk, without cutting or labor of man, comprise the great bulk of the valuable fattening food for range stock. A short description of each is given below.

The majority of the native, uncultivated forage plants of New Mexico are grasses, and the others, such as sotol and prickly pear, impress one as rather queer stock foods. The grasses of this class belong to two different groups—those which grow in the moist and alkaline soils of the valleys and those which are found on the mesas, and whose only supply of moisture is the little rain that falls during the year. Where irrigation is possible the best of all forage plants—alfalfa—can be raised in such great abundance that the cultivation of few other hay or fodder crops is attempted.

Hilaria mutica (Galleta grass).—This grass is found principally upon the high planes on both slopes of the Rocky Mountains. It is also known in localities as "black grama;" is a perennial grass, spreading by means of thick, scaly, underground stems, the roots of which are very nutritious, and stock seem to relish them.

Paspalum distichum (joint grass).—This grass is also known as "knot grass" in some localities. It is adapted to warm, moist soils of alkaline tendency, and in New Mexico is most abundant on low lands that are flooded occasionally, and upon the ditch banks late in the season. It is cut by the natives, to be fed green to stock before corn has matured. This grass is said to have some medicinal qualities.

Eriochloa punctata (Hamil).—Irrigated but uncultivated fields usually produce an abundant crop of the above-named grass each season. After the corn is "laid by," or during what little rain we have in the summer, this grass appears in the cornfields, along the ditch banks and the fence rows, and makes very rapid growth during the hot days of August and September. It produces an abundance of seed, and will reseed the ground each year. Land once seeded with it would produce a crop of fair hay after a crop of wheat has been taken off, and, so far as judged from an analysis, should be a valuable forage plant.

Panicum crus-galli (barnyard grass).—This rapidly growing annual is widely naturalized over the western and southern parts of the United States. As is indicated by its great geographical range, it has great powers of adaptation to climatic condition and is very variable, two well-marked varieties being recognized. It varies in height from a few inches to 5 feet and over, but the usual height is 3 feet. The natives cut this grass and feed it to their stock while green, before the corn matures. There is a difference of opinion as to the value of this grass as a hay crop. Some think it very valuable, while others think it worthless. It would be excellent to feed with alfalfa, and the two properly mixed would make a first-class combination.

Panicum obtusum (grapevine mesquite).—This is one of the native Southwestern grasses, found generally in the rich, loamy bottoms of the river courses, very rarely appearing on the mesas. It is a perennial which spreads rapidly, grows about a foot high, and produces a rather strict panicle of flowers. Stock seems to relish it. It does not grow tall enough to cut for hay, but would make a very fine pasture grass if supplied with water; its habits of growth and its great vitality would tend to prevent its being tramped out by stock.

Muhlenbergia texana (Texas drop-seed grass).—This is a perennial, growing upon the mesas and the dry rocky hillsides. It is sometimes known as the "grama grass," and is probably as valuable as any of the true grama grasses; it is also called "mesquite grass." This plant rarely exceeds a foot in height, but it is a grass that is much relished by stock on the range. Occasionally, when the summer rains have been heavy, it is cut, cured, and baled along with the grama grasses and others, and makes a very valuable hay.

Lycurus phalaroides.—This is a common grass, and is usually found on the rocky ridges and hills of the plains, and not rarely in the mountains. It has been collected at an altitude in New Mexico of over 6,000 feet above sea level. It grows in bunches under the most favorable conditions to a height of 18 inches. It would only be valuable for stock when fed with something containing much protein and fat.

Sporobolus airoides (bunch grass).—This is one of the commonest of all the native grasses in the western United States, and is found in all arid portions of the Rocky Mountain region from Montana to Texas and west to California. It is perennial, forming dense tussocks on flat, dry, alkaline plains. While it is of no value as hay, it is considered a good pasture grass in some sections, and it certainly is of great value upon those alkaline "flats," which will support few other kinds of vegetation, since it flourishes in such localities, and stock relish it.

Dr. Rothrock says that this grass and another closely related species (*S. cryptandrus*) furnish a fiber which might be utilized in making paper or cordage.

Bouteloua oligostachya (blue grama).—This is the common grama, and is also known as "mesquite grass" and is frequently mistaken for the "buffalo grass" (*Buchloe dactyloides*), with which it at one time formed the bulk of the pasturage upon the western plains and ranges. With the increased number of animals upon the ranges these grasses are being somewhat killed out, since they are very rarely allowed to seed, and thus few new plants are produced each season. It is a perennial, growing in small, dense clumps. It is not considered a very good grass for hay, but it is frequently cut and cured when standing with other grasses; but as a pasture grass it is probably the best of all native grasses. It is not easily tramped out and requires only a small amount of water. It grows rapidly and cures standing, and stock prefer it to almost any other rough food even when dry.

Bouteloua polystachya (six-weeks grama).—This is a common name applied to two species of the genus Bouteloua, which are quite common and similar in character, and the two usually appear together. Both are annuals, and spring up in the open mesa just after the summer rains, and grow very rapidly, maturing in about six weeks. Under the influence of these grasses, plains that were entirely bare will turn green and become valuable pasture land in a very short time. It is considered a very nutritious grass for stock.

Bouteloua eripoda (woolly-jointed grama).—This grass is also known as the "black grama," and forms a large portion of the native forage of this district. It is somewhat different from the other perennial gramas in habit, growing more like the six-weeks gramas. It does not grow in bunches or clumps, but is rather diffuse. It gets the name of "woolly-jointed grama" from the fact that the internodes or "joints" of the stems are thickly covered with silvery white hairs. Late in the season the stems become dark colored, and from this it gets the name of "black grama." The analysis of this grass indicates that it is not so good a food as most of the other grasses, since it is particularly poor in protein.

Bouteloua curtipendula (tall grama).—The tall grama or "hairy mesquite grass" is perhaps the most widely distributed of any of the grama grasses, being reported from nearly all of the States west of the Mississippi River and from several east of it. It is usually found on rocky hillsides and along the bases of the mountains, though it is not uncommon in the valleys and on the higher parts of the mountain ranges, having a vertical range of three or four thousand feet. It cures as other native grasses do, and is considered a valuable feed by stockmen. Stock of all kinds eat it readily. It is frequently cut with other grasses by those who use and sell wild hay in this Territory. It has been recommended by good authority as an addition to the pasture grasses of Tennessee, and is said to be cultivated to some extent in the Southern States and to be much prized.

Eremochloe kingii Watson.—This is a small grass. It seems to be well fitted to the climatic conditions of high, dry, and hot plains. It produces a crop every season, no matter how little rain falls. Its nutritive ratio of 1 to 11.6 is much better than that of corn stover, and indicates that it may be a moderately good food. The plant is small and tough, and stock seem to eat it only when there is nothing else left. Its main value appears to be in the fact that it is almost sure to produce a crop when other grasses fail.

Distichlis spicata (salt grass).—This is the true salt grass (also known as alkaline grass), and it certainly deserves either name, since it forms a thick sod over these marshy, alkaline "flats" and "draws," which are of comparatively frequent occurrence in this Western country. It grows well where alkali covers the surface of the land with a thick, white crust, provided there be sufficient water to supply its needs. It is cut in some localities, making a poor hay, but in this Territory, as far as is known, it is only used for a pasture grass. Animals eat it readily while it is green, but it should not be fed by itself.

A description of a number of other varieties of forage plants might be given if it were not for lack of space, and I will only mention the names of a few others, such as the Millo maize and Kaffir corn, Italian millet, Pearl millet, alfalfa (on which quite an article appears in this book), mesquite, tornillo, prickly pear, and sotol.

I mention these grasses more fully than I would do, because in many instances the newcomer in New Mexico is impressed by the apparently barren stretches of mesa which surround the valleys. He is told that stock raising is one of the principal industries of our Territory, and he immediately wonders where the food of all these cattle, sheep, and horses is obtained. But the dry, barren mesa produces much valuable forage, and, with the increase in numbers of the stock upon the range, the animals have acquired the habit of eating anything in the way of vegetable matter which is at all digestible or nutritious.

SOME GOOD THINGS ABOUT ALFALFA.

Alfalfa benefits lands for cultivation by opening up channels through compact substrata to a considerable depth, allowing the entrance of water and air. The roots have penetrated the most compact soil, and their power to enter through clay and hard streaks is great enough to make them excellent subsoilers. The soil of a field which has been planted to alfalfa has practically been deepened for subsequent sowing in wheat. We do not know of any observations having been made upon the root development of wheat in prairie soils, nor as to the depth to which they penetrate in the virgin soil, where there is a very fine, compact, and tough substratum, the result of settling and compacting of ages.

To plant such soil to alfalfa is to perforate this compact subsoil with numerous channels for the passage of water and air and for the entrance of other roots, when those of alfalfa have rotted. The work done by alfalfa roots in accomplishing this is very great, but this work is to benefit the soil, to the advantage of the succeeding crops and to the profit of the owner, being the cheapest labor as well as the best directed and most efficient of any which he can employ. The great benefit accruing to worn-out wheat fields by being sown to alfalfa is a matter assumed to be a fundamental fact of New Mexico farming.

At average prices alfalfa hay does not bear transportation, except it can be converted into some more marketable form; and this has been the case for years. Until recently the fattening of steers was profitable, and consequently a favorite manner of marketing alfalfa hay. The hay was fed in the field, the animals pasturing and feeding on the ground upon which the crops grew; this was practically equal to returning the crop to the soil from which it was taken. Of course, the practice is not without some drawbacks; still the crowns were not trampled to death and the voidings of the animals were equivalent to manuring the surface soil with the crop grown upon it. There is no question that this is not an economical way of treating the manure; but, in spite of the losses, a large amount of the manurial elements of the crop were returned to the soil.

This does not hold for sheep feeding, and unless farmers pay more attention to the manure of the sheepfold, some of the beneficent effects of alfalfa growing observed in the past will be wanting in the future. The care of this manure is an important question to the people of this country. Alfalfa is a heavy feeder and lays a tax upon the soil for every benefit it bestows. The apparently wasteful methods of the past have tended to gain all the advantages from growing this plant and to obviate any disadvantages. If the same good results are to be maintained under a changing system of feeding, care must be exercised, and the manurial equivalent of the crop must be returned to the soil.—[Field and Farm.]

OUR HOME MARKETS.

The manifold resources of New Mexico command notice from the home seeker and the immigrant, among other reasons, because it will be years before the Territory of New Mexico will produce sufficient to fill the demand of the home market. Pastoral and allied industries are inviting to the young farmer of the East who is seeking a broader field in which to toil, and where his remuneration will be more munificent than the Central and Eastern States allow.

The mineral wealth of the Territory and the surrounding States puts a higher premium on agriculture in New Mexico than is possible in Illinois, Indiana, or Ohio, for, while those States are fully equipped for horticulture and agricultural successes by excellence of soil and ample humidity, they are devoid of that large consuming element that produces no breadstuffs, yet delves into the earth and secures wealth which the producer of grains, fruits, and clothing needs as a reward for his effort. It is only in recent years that the manufacture of flour commenced in Colorado and has since partly supplied the demand in New Mexico. Previous to that time the supply was drawn from the East, 200 carloads coming to Las Vegas in a single year, and to other towns in like proportion. Every day in the year now trains roll into the Territory from the East, laden with the products of other States which can be made or grown within our Territory. There is an actual demand within the Territory for 20,000,000 pounds of flour annually. Over 8,000 tons of corn are used, and the same general facts are applicable to the other articles of domestic consumption. In every instance there is an actual home market for everything the farmer and fruit grower raises. It is waiting for the home seeker and immigrant to supply it from the soil of the Territory of New Mexico.

No one has taken the trouble to raise such articles in sufficient quantities in the past. But the era of advancement in this direction having set in, only needs to be pursued a few years, when the industry of California will be repeated, and New Mexico will be shipping fruit to Europe. Now is the time for a start for many a young farmer from the older sections of the Union which have failed to give reward for industry. If he will head for the valleys of New Mexico, where new districts are being put under irrigating canals by heavily capitalized companies, he will be convinced, after investigation, that a sure road to wealth, independence, and health will have been entered upon when he concludes to cast his fortune with the coming State of New Mexico.

THERMAL SPRINGS OF NEW MEXICO.

Excepting the famous Yellowstone National Park, situated in the northwest corner of Wyoming, there is no other locality outside the Territory of New Mexico that contains so many natural thermal springs. This fact is not generally known throughout the States, and I avail myself of the opportunity to say a few words about these health shrines of nature's own furnishing, so frequently sought by the unfortunate sufferer from disease. Many persons not informed upon the natural resources of their own country annually flock abroad to seek relief from the waters of the various European "spas." Many of these persons might be induced to visit the great natural springs so numerous in this Territory could the matter of their medicinal merit be brought to notice in such a way as to show them that what they seek abroad can readily be found at home, and that in curative properties the natural mineral springs of New Mexico excel many of those of European repute.

Accurate analyses made by competent chemists show the composition of most of the springs found in New Mexico to be superior in many respects to those enjoying the highest reputation in Europe and in other countries. Many of these places are far removed from the general line of travel, but those best known to-day are easily accessible to the tourist and health seeker, and are reached by good roads and stage lines. Many of them are equipped with modern hotels and bathrooms, good food, good service, healthful surroundings; in fact, ideal conditions to carry out a line of treatment where regularity, isolation, physical and mental rest are important factors. It would be a work of supererogation to attempt an enumeration of the many afflicted persons who have visited these springs, taking a course of the waters, and returning to their homes greatly benefited in health. A glance at the chemical composition of many of these waters will show that they compare favorably with many of those most sought in various parts of the world.

The geologic processes are so recent in New Mexico that nearly every county in the Territory has its healing, hot, or mineral springs. The purpose of this article is only to give a few facts concerning the more accessible resorts. Many important places are necessarily omitted, because the average tourist would be unable to visit them.

In geographical order the first to be mentioned are—

FOLSOM HOT SPRINGS.

Situated near Alps, a station on the Denver, Fort Worth and Texas Railroad, 59 miles south of Trinidad, on the summit of the Raton range of mountains, close to the extinct volcano of Capulin, in Colfax

County, near the northern boundary of the Territory. The altitude is about 6,500 feet, and the location is very beneficial for consumptives. They have fine medicinal properties and promise to become of prominence.

LAS VEGAS HOT SPRINGS.

In San Miguel County, at the mouth of the picturesque Gallinos Canyon, on the banks of the Gallison River, is situated the Las Vegas Hot Springs, famed throughout the length and breadth of the land for their curative virtues in a multitude of diseases.

The springs are twenty-two in number, and from analyses made by Prof. F. V. Hayden, of the United States Geographical Survey, the following is extracted:

Constituents.

		1.	2.	3.
Sodium carbonate	per cent	1.72	1.1	5
Magnesium carbonate	do	1.08	10.6	10.43
Sodium sulphate	do	14.12	15.43	16.21
Sodium chloride	do	27.26	24.37	27.84
Potassium	do	Trace.	Trace.	Trace.
Lithium	do	St. trace.	St. trace.	St. trace.
Silicic acid	do	1.04	Trace.	2.51
Iodine	do	Trace.	Trace.	Trace.
Bromine	do	Trace.	Trace.	Trace.
Temperature	degrees F	130	123	123

In its chemical composition this water resembles in many respects the waters of the famous hot springs of Teplitz, in Austria, while in its two chief active constituents, the carbonate and sulphate of sodium, it may recall the somewhat analogous, though very much stronger, waters of Carlsbad, justifying in a degree the name often given it of "dilute Carlsbad water." This dilution, however, is more frequently a benefit than a disadvantage, for it permits a larger amount of the water to be taken, thus securing the valuable solvent and eliminating powers of the water itself, together with the remedial virtues of its mineral constituents.

OJO CALIENTE (HOT SPRINGS).

These celebrated hot springs are located in the midst of the ancient Cliff Dwellers, 25 miles west of Taos and 50 miles north of Santa Fe, N. Mex., and about 12 miles from Barranca Station, on the Denver and Rio Grande Railway, from which point a daily line of stages run to the springs. The temperature of these waters is from 90° to 122° F. The gases are carbonic. Altitude, 6,000 feet; climate, very dry and delightful the year round. There is now a commodious hotel for the convenience of invalids and tourists, and the reputation of these wonderful medicinal waters is fast spreading. These waters contain 1,686.34 grains of alkaline salts to the gallon, being the richest alkaline hot springs in the world. An analysis of these waters shows a total of 288.09 parts in 100,000 divided as follows:

Sodium carbonate	196.95
Calcium carbonate	4.20
Iron carbonate	20.12
Sodium chloride	40.08
Arsenic	10.08
Lithium carbonate	1.22
Magnesium carbonate	6.10
Potassium sulphate	5.29
Silicic acid	4.10

JEMES HOT SPRINGS

Are in Bernalillo County, in Santiago Canyon, being a branch of the Jemes Creek, which 9 miles south connects with another branch running through Guadaloupe Canyon. To reach them one has to travel from Santa Fe by wagon road to Pena Blanca, 27 miles distant west, crossing the Rio Grande there, and thence keeping a western course through the foothills of the Valles Mountains to Jemes pueblo, 26 miles; from there it is 13 miles to the first group of springs, at Archuleta post-office; or from Bernalillo, on the Atchison, Topeka and Santa Fe Railroad; also by wagon road past Santa Ana and Zia (or Silla) pueblos to San Ysidro and thence to Jemes pueblo, where this road and the former join, distant 27 miles.

Both roads are sandy, but the latter especially so, running for about 13 miles through Jemes Canyon.

A much better road, running from Archuleta north and northeast through the mountains and ending at Espanola, has recently been constructed.

There are several groups of hot springs in Santiago Canyon, but those at Archuleta, and 2 miles farther north, are most frequented. At Archuleta are ample hotel accommodations. Many health seekers prefer the "upper group" and camp there. At both places the scenery is enchanting and the atmosphere dry and healthy.

The lower springs, at Archuleta post-office, have an altitude of 6,620 feet above sea level. Limestone and sandstone of the Carboniferous age form the sides of the canyon, 1,000 feet high, often changed from their original position by volcanic materials. There are here:

1. A geyser with an opening of 1 square foot, a temperature of 168° F., running about 50 gallons a minute, with escaping carbonic acid and deposits of white carbonate of lime.
2. A spring of 130° F. with free carbonic acid and red-brown deposits.
3. A spring of 119° F. with "alga" (cryptogamic water plants). A black sulphate of iron forms on them, a result of the action of sulphureted hydrogen upon carbonate of iron and oxide of iron in the alga. The sulphureted hydrogen is a product of the reduction of gypsum.

There are more springs, with a temperature from 102° to 108° F. The total salts in 100 parts of water amount to 0.2401 parts of sodium, lime, and magnesia. These springs are especially beneficial to rheumatic diseases.

The upper group, 2 miles from Archuleta, in the same canyon, consists of 42 springs. Their elevation is about 6,740 feet above sea level and their temperature varies from 70° to 105° F.

They flow from caves of carbonate of lime, some of which are 20 feet in height. Combined they form a dam or dike 30 feet high and 200 feet long. The springs contain 37.26 parts solids in 100 parts water, mostly chloride of sodium and sulphate and carbonate of soda, lime, and magnesia. They greatly resemble the famous Marienbad.

Besides the hot springs, north of the upper group are cold mineral springs. Halfway between the two groups is an extensive ruined pueblo.

CHERRYVILLE SPRINGS.

In Socorro County, at Cherryville, is the next occurrence of noted springs. These are found near the head of the cañada or falls of the

Alamosa, whence Geronimo started out on his famous raid. They are accessible by stage from Engle, a station on the Atchison, Topeka and Santa Fe Railroad. They are on the eastern slope of the Black Range. The temperature is 130° F. and the altitude 6,540 feet.

GILA HOT SPRINGS.

In the southwestern part of Socorro County, on the west of the Gila or Diamond Creek, as it is called, is a group of springs, at 5,545 feet altitude, that are easily reached by wagon from Silver City. The temperature is 130° F. and they carry similar ingredients to the Jemes Springs.

APACHE TAJOE SPRINGS.

Four miles from Whitewater, on the Atchison, Topeka and Santa Fe Railroad, are also found some good springs of 97° F. They are in Grant County, 30 miles north of Deming.

HUDSON SPRINGS.

Twenty-four miles north from Deming, and within 3 miles of Hudson, on the Santa Fe road, are several good springs. These springs are widely known and much frequented, both on account of their medicinal value and the lovely climate and beautiful scenery.

The average temperature of the springs is 130° F. and their altitude 5,782 feet above sea level. The main spring is a mound of soda, lime, and magnesia, in the center of which is a large depression containing the permanently boiling water which has effected many cures of rheumatism and kidney and blood diseases. The water contains in 1 gallon the following solids:

	Grains.
Silica	1.552
Alumina and oxide of iron	.530
Carbonate of lime	4.448
Carbonate of magnesia	2.624
Sulphate of soda and potassium	13.547
Chloride of soda	2.286
	24.987

Some other undeveloped springs are about 3 miles north of Hudson Hot Springs.

It remains to be said that close to the western boundary of the Territory are several other locations of hot springs, of which one is about 10 miles southwest of Zuni and one in the valley of the San Francisco River, the latter at an altitude of 5,630 feet above sea level and having an average temperature of 84° F., largely used by the Indians and the people of the vicinity, respectively.

AZTEC SPRINGS.

This is a cold-water spring situated 4 miles east of Santa Fe. From the surrounding hills and ridges a magnificent view is had of the country for many miles, including the city of Santa Fe, the valley of the Rio Santa Fe, and portions of the valley of the Rio Grande del Norte, together with the magnificent mountain ranges in different directions.

Col. D. L. Huntington, surgeon, U. S. A., and curator to the United States Medical Museum, says of this spring: "The water contains 18 grains to the gallon of solid material, and it resembles many of t celebrated German springs, and would be found very useful in such diseases as catarrh of the bladder and all forms of dyspepsia and intestinal indigestion. The water is also useful as a gentle and constant tonic."

Analysis of this water made by F. W. Clark, chief chemist of the Smithsonian Institution, Washington, D. C., shows it to contain the following per 1,000 parts:

Silica	0.220
Carbonate of calcium	1.538
Magnesium	.605
Sodium chloride	.225

With enough carbonic-acid gas to retain the carbonates of calcium and magnesium in solution as bicarbonates.

Such healing waters, taken in connection with the pure, dry, and bracing climate of the mountains, should surely prove a boon to those affected with many forms of disease, and the attention of physicians throughout the country is invited to the many merits they possess in the treatment of numerous forms of disease.

CLIMATE.

REPORT OF THE NEW MEXICO CLIMATE AND CROP SECTION.

The Territorial assembly of 1898 renewed the annual appropriation of $700 for the purpose of printing the data collected by the service. All other expenses of equipment, distribution, salaries, etc., are borne by the United States Weather Bureau.

During the year ending June 30, 1899, 8 stations were established and 5 discontinued. At the close of the year there were 41 stations reporting to the central office at Santa Fe, which included 2 military posts, 5 stations of the Southern Pacific Railway, and 34 volunteer observation stations. Every county in the Territory is represented in the reports of the section, excepting Taos and the new county of Otero. In the latter county stations have been equipped at both Alamogordo and Fresnal, but as yet neither is in active operation. During the year the section has received meteorological reports from Dr. William Curtiss Bailey, medical superintendent of the Montezuma Hotel at Las Vegas Hot Springs. Dr. Bailey equipped the station at private expense, and the regular and careful reports from this noted health resort prove a valuable addition to the service.

There have been printed and distributed during the year 10,000 weekly climate and crop bulletins, 6,000 monthly reports, and 800 annual summaries. The weekly bulletins, issued during the crop season, are widely copied by the press of the Territory and frequently by outside papers. Their distribution by this means is estimated to reach more than 20,000 readers weekly.

The central office is continually receiving applications for meteorological data from citizens of other sections who contemplate settling or sojourning in the Territory. The proposed establishment of sanitariums for the treatment of tuberculosis at Fort Stanton and Fort Bayard by the United States Marine-Hospital Service has set the seal of approval of the highest medical authorities on the superior climate of New Mexico.

CROP REVIEW, SEASON OF 1898.

The season opened with March having a normal precipitation, but slightly cooler than usual. The temperature, however, was quite steady, and favorable for farm work. In southern sections wheat was sown in the early part of the month, but in the north little work was done before the 15th. During the last week in southern localities apricots and peaches were somewhat injured by frost, but in the north, where little advance had been made, the fruit was uninjured. Stock came through the winter in good condition, and feed on the ranges started out well. Water for irrigation purposes was plentiful.

April was very favorable, being both warmer and wetter than usual. There was a slight frost on the 1st and 5th, but little damage resulted, as crops were not sufficiently advanced. In southern sections wheat had a good growth by the end of the month, corn planting was well begun, and fruit trees were in full bloom over the Territory generally. Alfalfa and grass on the ranges were making excellent growth.

The month of May was dry and cool. A frost on the 5th and 20th, in upper central sections, nipped tender garden plants and unprotected vineyards, and a killing frost on the 21st destroyed much of the fruit of San Juan County and vicinity. The drought caused little harm, as irrigation water was abundant; but the low temperature and absence of moisture retarded the growth of vegetation. During the last of the month corn planting generally was suspended, awaiting rains. In southern sections sugar-beet planting was carried on during the month under favorable conditions. The first cutting of alfalfa was made on the 15th in southern counties. Toward the close of the month stockmen were experiencing some difficulty in finding water for their stock, and ranges were beginning to suffer.

Although June averaged cooler than usual, the last ten days of the month were much warmer than normal. The protracted drought was generally broken, beginning with the 5th, and the month thereafter proved unusually favorable for stock and farming interests. Corn planting, which had been suspended, was resumed during the second week under most favorable conditions. Oats, wheat, and barley made very good growth, and the hot, sunshiny weather of the last ten days ripened grains so rapidly that by the close of the month some in the southern section had begun to harvest. Fruits also matured rapidly, and during the last week of June large consignments of plums, peaches, and cherries were being shipped from southern orchards. The effects of the May frosts became more apparent on fruits of northern sections, and it was expected that the total output would be greatly reduced.

The average precipitation for July was about an inch and a half greater than the usual amount, so that although the temperature was slightly below the normal the month as a whole was unusually favorable to crop growth. During the first week harvesting wheat and oats was well begun, but owing to showery weather some trouble was experienced in properly securing the crop. In northern counties the second cutting of alfalfa was well begun by the 15th, but much of this also was damaged by the rains. Corn made excellent growth during this wet season, and by the close of the month had more than made up for its late start. All garden truck, such as beans, peas, early potatoes, etc., were abundant in southern markets by the 15th. The marked feature of the month was the period of heavy showers during the second week, which caused "washing" of standing grain, and interfered greatly with harvest. In many localities it was impossible to secure the grain which had been cut, and much of it was expected to sprout in shock. The damage was not so great as was anticipated, however, as the dryer weather of the latter part of the month brought more favorable conditions, and permitted many farmers to clean up their harvesting to good advantage. In the northern section, however, much of the grain and of the second crop of alfalfa still remained uncut. Fruits were turning out very satisfactorily. At the close of the month early grapes were ripe in some localities, and melons were being shipped from southern fields. In northern counties the larger tree fruits were coming to market. Sugar beets continued very promising. The weather during this period was particularly favorable to stock interests, there being sufficient water and excellent feed.

The average temperature for August was about 2.5° below the normal. The rainfall also was a quarter of an inch below the usual amount, and occurred as light showers rather well distributed over the Territory and during the month. Toward the close of the month, however, southern districts suffered considerably from drought. Wheat, barley, and oats harvests in southern sections were well secured by the 10th. As a rule corn continued doing well, but toward the close of the month suffered somewhat from lack of rain in nonirrigated fields. By the close of the second decade early fruits of all kinds, melons, and early varieties of grapes were abundant in southern markets, and also were in northern markets by the end of the month. Sugar beets in general continued particularly promising, although during the latter part of the month some fields suffered considerably from drought. At this time fears were entertained that there would be a scarcity of winter feed on northern ranges. With few exceptions there was sufficient water throughout the month for irrigation purposes.

September was an unusually dry and sunshiny month. The greater part of the month was much warmer than usual, although the average temperature for the whole month was about 1° below the normal. This average deficiency was caused by the cold spell from the 9th to the 13th, when the first killing frost occurred throughout northern portions, causing much damage to potatoes, tomatoes, melons, etc., and also injuring alfalfa and unripe corn. The average precipitation was a little less than three-quarters of an inch, being about an inch below the average amount for this month. Nearly all of this rain fell during the cold snap, the first week and the period after the 13th being dry, and with cloudless skies. The third cutting of alfalfa was secured during the first week in southern counties, and in northern sections during the third. In northern counties corn cutting was in progress during the third decade, and in some localities ground was being prepared for fall planting. Notwithstanding the frosts, garden vegetables continued in abundance. Sugar beets were maturing very satisfactorily, the crop promising to be the finest yet grown. The larger tree fruits, as apples, pears, peaches, nectarines, etc., matured very satisfactorily, and in most sections were unusually fine although the yield was somewhat less than usual. Grapes also were reported as being of an unusually fine quality, although the yield was below that of some former years. As a rule the feed on ranges held out very well, and stock continued in prime condition, but the protacted drought caused some anxiety as to the prospects for winter feed, especially among northern stockmen. Water for irrigation purposes, with the exception of a few isolated cases, continued sufficient notwithstanding the drought during September, and the season of 1898 closed as one of the most prosperous New Mexico has known.

Climatological data for the year 1898.

Stations.	Counties.	Elevation (feet).	Temperature, in degrees Fahrenheit.						Precipitation in inches.							Number of rainy days.	Sky.			Prevailing direction of wind.
			Length of record (years).	Annual mean.	Highest.	Date.	Lowest.	Date.	Length of record (years).	Total for the year.	Greatest monthly.	Month.	Least monthly.	Month.	Total snowfall.		Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Albert	Union	4,700	7	56.1	106	June 25	4	Dec. 9	7	14.51	4.52	July	0	Feb	12.7	47	225	102	38	
Albuquerque	Bernalillo	5,008	22	55.5	104	June 29	0	Jan. 25	23	6.39	1.25	July	.12	May	22.4	39				S.
Alma	Socorro	5,500		54.2	100	July 28	—5	Jan. 24*a*		17.28	4.00	July	0	Oct						SW.
Aztec	San Juan	5,590		48.4	99	July 29	—16	Jan. 25*b*		10.16	2.47	July	0	Oct	28.5	52				W.
Bernalillo	Bernalillo	5,260		55.7	99	June 26*c*	3	Dec. 14		5.82	1.38	Aug	T.	Sept	13.7	32	315	44	6	E.
Bluewater	Valencia	6,200		47.8	100	July 1	—8	Jan. 25		8.07	3.72	July	0	(*d*)	18.0	24				W.
Buckman's	Rio Arriba	8,500		38.3	92	June 29	—30	Dec. 22		14.51	4.12	July	.12	Sept	62.0	76	195	151	19	W.
Clayton	Union	5,178		54.0	100	July 28	—1	Dec. 8		14.05	3.15	June	T.	Mar	22.3					S.
East Las Vegas	San Miguel	6,450	11	49.3	92	June 29	—6	Jan. 22	11	16.99	4.63	July	.21	Feb	25.7	78	287	52	26	SW.
Eddy	Eddy	3,122	5	59.8	101	June 2	10	Dec. 9	5	16.92	5.51	June	0	Oct	6.5	41	211	65	89	SE.
Engle	Sierra	4,750		55.0	101	July 29	4	Dec. 13		14.88	4.40	Aug	0	(*e*)	17.0	25	198	146	21	SW.
Espanola	Santa Fe	5,590		50.0	100	June 29	—15	Jan. 25		7.78	2.22	July	0	Feb	15.5	36	261	97	7	S.
Folsom	Union	6,000		48.3	92	June 29*f*	8	Jan. 24*g*		17.85	3.48	July	.12	Mar	80.1	63	188	153	24	SW.
Fort Bayard	Grant	6,040	23	54.2	96	July 28	—1	Jan. 25	23	16.21	6.56	July	0	(*h*)	19.0	52				SW.
Fort Union	San Miguel	6,750	38	48.5	99	June 29	—2	Dec. 23*i*	38	20.19	5.74	July	.02	Mar	21.7	54				SW.
Fort Wingate	Bernalillo	6,649	35	50.4	100	June 30	—10	Jan. 25	35	13.62	3.83	July	0	Oct	47.3					W.
Galisteo	Santa Fe	6,074		51.6	98	July 19	1	Dec. 31		9.30	3.41	July	0	(*j*)	19.5					W.
Gallinas Spring	San Miguel	5,272	13	54.0	101	June 29	0	Jan. 22	13	12.13	4.00	July	T.	Oct	18.0	48	219	72	74	W.
Gila	Grant	4,040		58.7	103	July 28	0	Dec. 13		15.22	3.18	July	T.	Oct	18.5	61	240	85	40	SW.
Hillsboro	Sierra	5,100			104	June 24	9	Jan. 22	6	10.54	3.31	July	0	Oct	13.5					W.
La Luz	Donna Ana	4,750		58.8	96	June 16*k*	14	Dec. 10		19.23	6.30	July	T.	(*l*)	5.6	52	216	137	12	SW.
Las Vegas Hot Springs	San Miguel	6,767			98	June 28	0	Dec. 10*m*												SSW.
Los Lunas	Valencia	4,900	6				—10	Jan. 22	7											
Lower Peñasco	Lincoln	5,250		55.1	99	June 26	3	Dec. 9		20.35	7.40	July	T.	Oct	22.6	47				W.
Mesilla Park (formerly Las Cruces).	Donna Ana	3,500	11	57.2	102	July 29	7	Jan. 17*n*	11	11.21	2.43	Aug	T.	(*o*)		50	191	108	66	W.
Monero	Rio Arriba	7,356	8				—20	Jan. 25*p*	6		4.49	July	.11	Aug	27.0					W.
Puerto de Luna	Guadalupe	5,350	6	56.8	102	July 27	4	Dec. 31	6	13.96	5.51	July	0	Feb	19.0					W.
Raton	Colfax	6,400		48.5	98	Aug. 15	—8	Dec. 12		13.97	4.00	July	0	Mar	15.7					S.
Rincon	Donna Ana	4,030		59.1	102	July 29	10	Dec. 31		11.13	3.62	July	0	Feb		20	284	39	42	W.
Roswell	Chaves	3,570	6	57.2	100	July 23	2	Jan. 20	6	20.62	6.53	July	T.	(*r*)	17.0	43	189	107	69	SW.
San Marcial	Socorro	4,554			100	June 4	2	Dec. 12*s*												S.
Santa Fe	Santa Fe	6,998	24	47.9	91	June 29	—6	Jan. 25	24	12.97	4.00	Aug	.18	Sept	21.9	73	201	103	61	SE.
Shattuck's	Eddy	6,000			100	May 25*t*	—2	Dec. 8*v*							38.5					SW.
Socorro	Socorro	4,600	7				4	Jan. 24*w*	7											NW.
White Oaks	Lincoln	6,470		51.2	95	June 26*x*	—3	Jan. 16		22.47	5.60	July	0	May	31.5	59	261	50	54	W.
Winsors	San Miguel	8,000		40.6	86	June 28*y*	—14	Jan. 15		23.19	5.10	July	.71	Mar						W.S.

a And Dec. 13. *b* And Dec. 31. *c* And June 29. *d* Mar., Sept., and Oct. *e* Feb. and Oct. *f* And June 30 and July 27. *g* And Jan. 25, 26, and Dec. 31. *h* Feb., May, Oct.
i And Dec. 30. *j* Mar., May, Oct. *k* And June 25. *l* May and Oct. *m* And Dec. 31. *n* And Jan. 22. *o* May and Oct. *p* And Jan. 26 and Dec. 30.
r Mar. and Oct. *s* And Dec. 14. *t* And July 27. *v* And Dec. 9 and 23. *w* And Dec. 14. *x* And July 28. *y* And June 29 and July 28, 29.

Voluntary observers.

Stations.	Observers.	Stations.	Observers.
Albert	A. Knell.	La Luz	Mrs. H. T. Findley.
Albuquerque	Prof. M. Custers.	Las Vegas Hot Springs.	Wm. C. Bailey, M. D.
Alma	Wm. French.	Lordsburg	Agt. So. P. R. R. Co.
Aztec [a]	Dr. T. J. West.	Los Lunas	Richard Pohl.
Bernalillo	Bro. Gabriel.	Lower Penasco	J. F. Hinkle.
Bluewater	J. S. Van Doren.	Mesilla Park	New Mexico Agr. College.
Buckman's	H. S. Buckman.	Monero [c]	D. W. Caldwell.
Clayton	G. W. Guyer.	Olio	Cyril James Collyer.
Deming	Agt. So. P. R. R. Co.	Puerto de Luna	P. R. Page.
East Las Vegas [b]	Dr. F. H. Atkins.	Raton	W. M. Oliver.
Eddy	Prof. E. M. Skeats.	Rincon	A. J. Coats.
Engle	E. J. Westervelt.	Roswell	W. M. Reed.
Espanola	Jim Curry.	San Marcial	J. W. McCoach.
Folsom	Jackson Tabor.	Santa Fe	U. S. Weather Bureau.
Fort Bayard	Post Surgeon.	Shattuck's	J. S. Shattuck.
Fort Union	M. C. Needham.	Socorro [d]	Prof. W. H. Seamon.
Fort Wingate	Post Surgeon.	Springer	Dr. L. Hines.
Galisteo	Sylvester Davis.	White Oaks	Urbain Ozanne.
Gallinas Spring	Jas. E. Whitmore.	Winsors	H. D. Winsor.
Gila	Chas. H. Lyons.		
Hillsboro	Frank I. Given, M. D.		

Forecast display stations—Distributing center, Santa Fe.

Stations.	Displaymen.	Stations.	Displaymen.
Albuquerque	Postmaster.	Raton	A. L. Hobbs.
Clayton	G. W. Guyer.	Roswell	W. M. Reed.
Eddy	P. V. & N. E. Ry.	Silver City	Prof. A. E. Bennett.
Las Vegas	City Marshal.		

Climate and crop correspondents.

Stations.	Correspondents.	Stations.	Correspondents.
Alameda	Arthur Betts.	Las Cruces	C. Thompson.
Albert	H. M. Hansom.	Los Alamos	Wm. Frank.
Albuquerque	M. Custers.	Los Lunas	Richard Pohl.
Allison	Wm. Taylor.	Lower Gila	J. E. Casper.
Alma	Wm. French.	Lower Penasco	J. F. Hinkle.
Aztec	Prof. C. E. Mead.	Mangus	Thos. J. Clark.
Bernalillo	Brother Gabriel.	Manzano	J. F. Chaves.
Bluewater	J. S. Van Doren.	Ocate	E. M. Cosner.
Buckman's	H. S. Buckman.	Ojo Caliente	A. Joseph.
Clayton	G. W. Guyer.	Old Albuquerque	A. Montoya, jr.
Eddy	L. O. Fullen.	Olio	C. J. Collyer.
Eddy	A. L. Hilton.	Puerto de Luna	P. R. Page.
Engle	E. J. Westervelt.	Raton	W. M. Oliver.
Espanola	Jim Curry.	Rincon	C. H. Raitt.
Estalina Springs	E. A. Clemens.	Roswell	W. M. Reed.
Farmington	J. G. Willett.	Santa Fe	A. Boyle.
Fort Union	M. C. Needham.	Shattuck's	J. S. Shattuck.
Frisco	C. Hightower.	Silver City	D. C. Hobart.
Galisteo	Sylvester Davis.	Socorro	Prof. W. H. Seamon.
Gallinas Spring	J. E. Whitmore.	Springer	Dr. L. Hines.
Gila	Chas. H. Lyons.	Tularosa	J. H. Lightfoot.
Hillsboro	R. A. Nickle.	Valley Ranch	H. M. Strong.
La Belle	Frank Staplin.	White Oaks	Urbain Ozanne.
Las Vegas	F. O. Kihlberg.	Winsors	H. D. Winsor.

[a] Prof. C. E. Mead, from July.
[b] Miss Inez D. Rice, from October.
[c] Mrs. C. D. Caldwell, from August.
[d] Prof. F. A. Jones, from September.
Forecasts are bulletined at all stations along the Pecos Valley and Northeastern Railroad.

Annual summary of meteorological data Santa Fe, N. Mex., 1898.

Month.	Pressure.			Moisture. a				Average daily cloudiness, 0 to 10.	Wind.				Percentage of sunshine.
	Monthly mean.	Extremes.		Dew-point.		Relative humidity.			Average hourly velocity.	Maximum velocity.	Direction at time of maximum velocity.	Prevailing direction.	
		Maximum.	Minimum.	6 a. m.	6 p. m.	6 a. m.	6 p. m.						
January	23.17	23.55	23.73	11	9	67	45	4.5	5.8	27	SW.	NE.	55
February	23.27	23.51	22.97	17	22	63	43	2.8	5.4	26	N.	NE.	83
March	23.15	23.38	22.88	15	9	56	29	3.3	7.1	36	SW.	SW.	74
April	23.27	23.50	22.89	23	17	51	30	4.1	8.1	36	SW.	SE.	71
May	23.21	23.48	22.99	25	16	47	20	4.2	8.3	38	SW.	SW.	79
June	23.32	23.50	23.16	37	27	52	28	4.1	6.1	30	SE.	SW.	70
July	23.39	23.55	23.26	48	44	67	43	6.3	5.7	34	NE.	SE.	61
August	23.30	23.54	23.21	46	48	66	38	4.5	5.8	25	S.	SE.	72
September	23.34	23.57	23.17	28	21	46	19	2.1	5.4	30	S.	SE.	90
October	23.34	23.59	23	18	9	44	16	2	6.1	30	NE.	SE.	89
November	23.22	23.48	22.79	15	13	54	35	2.1	6.6	41	SW.	SE.	82
December	23.36	23.52	22.98	10	10	69	50	3	7	36	NE.	NE.	74
Total for year	23.28	23.59	22.73	24	20	57	33	3.6	6.4	41	SW.	SE.	75

a Mountain time.

CLIMATIC CONDITIONS.

There is no portion of the Union possessing such splendid climatic conditions as exist in this Territory. Here we have a dry, arid temperature, with no extremes of heat or cold, with clear, bright skies and an almost continuous sunshine, that has given New Mexico the well-known sobriquet of "the Sunshine State."

The climate is peculiarly adapted to the cure of pulmonary diseases. A celebrated physician who has given much study to the subject, and who recently made a tour of Europe and America in the interest of this class of the afflicted, investigating the climatic conditions of the various countries with reference thereto, recently stated that the conditions existing in New Mexico were superior to those found elsewhere; that it was an ideal climate for the cure of pulmonary diseases. This is conceded by the best-informed medical experts.

It is probable that at this time there is no disease that afflicts so large a class of humanity with such fatal results as that of pulmonary consumption; none that causes so much suffering, pain, and sorrow. It is a scourge affecting every class, the rich and the poor, the high and the low—all fall beneath its blight and succumb to its dreadful ravages.

Medicinal science has never been able to master it, or to discover medical appliances or remedies that will cure it when once it has a firm hold upon its victim. The greatest minds of the profession have devoted their lives to its study, searching for remedies without avail. All agree that nature's remedy is the best and only cure. Breathing of a pure, invigorating, rarefied atmosphere in an equable climate, with clear, bright sunshine, where the heat of the sun is at its maximum and that of the air at its minimum, are the best conditions for its cure.

All of these conditions are found at their best in New Mexico. In every community may be encountered those who have taken advantage of these life-giving qualities. In a large majority of cases where the invalid has come in the early stages of the disease he has found relief and either been entirely cured or had many years added to his life.

OUR MATCHLESS CLIMATE—PEERLESS AMONG PLACES, NEW MEXICO'S CLIMATE MAKES OF MERE LIVING A LUXURY.

Such are the general features of the climate of New Mexico, diversified, of course, by the peculiarities of each particular place as to whether in the northern, central, or southern part of the Territory; whether in river valley, on low-lying table-land, on higher mesa, or on mountain side; whether in sandy sections, on clayey soils, or in the rude wilderness of rock and gravel; whether surrounded by primeval pine forests, dry stretches of barren prairies, cultivated fields of grains and grasses, luxuriant orchards and gardens and vineyards; whether with eastern, western, northern, or southern exposure—in fact, the modifications are so innumerable in themselves and in their combinations that no two places, even a few miles removed, can be said to have identically the same climate. And yet the same general features pertain to all: Mild winters, cool summers, nights never warm, ceaseless sunshine, dry air, little rain, great altitude, no malaria, and abundance of electricity, making the matchless climate of the world. It is not given to the earth to claim perfection, but New Mexico comes as near perfection in climate as the world can produce. The mere act of living here is in itself an indescribable luxury. The drinking in of its pure, dry, electrified air is like taking an elixir. The walking on its elevated soil, where 7,000 pounds of air pressure have been removed from the ordinary human body, is like treading a new world. To gaze into the vast serenity of its dazzling blue sky, unflecked by cloud, undimmed by storm, is a pleasure never to be forgotten and never growing stale by repetition. To look out over its landscapes, with their sharply contrasted high lights and deep shadows, as of a scene illuminated by electricity, makes other views grow tame upon the eye. In summer, to arise every morning invigorated from a refreshing sleep between blankets, and to retire again in the evening without the lassitude and abject weariness produced by having spent the day in a sweltering sweatbox; in winter, to know nothing of the piercing, prying, not to be excluded cold, gnawing its way to your very marrow and curdling as it were the actual blood in your veins—to escape these, and have a winter with but few days when an overcoat is needed by anyone attending to business, and with almost every day permitting invalids to enjoy the sunshine and fresh air by walking, driving, or sitting in the parks, and, on the other hand, to find in summer that fans are never required for comfort, and that as soon as the sun goes down from the mountain heights and the lofty valleys there come sweeping upon the lower lands, cool and invigorating breezes, laden with resinous aroma and surcharged with electricity, carrying health to diseased lungs and throats, strengthening the entire frame, building up the physical man, invigorating depleted brain tissue, restoring destroyed appetite, quieting excited nerves—in a word, turning back the hands of life on the dial of age—to experience these things is to fall in love with the land and to be unwilling ever again to live elsewhere.

TO THE HEALTH SEEKER—EXCEPT WHERE ALTITUDE IS HARMFUL NEW MEXICO INVITES THE AFFLICTED OF THE EARTH.

While every class of invalid, except those suffering from heart trouble, will find relief in the climate and medicinal waters of New Mexico; while miasma is unknown and malaria can not be produced for lack of decaying organisms; while the water is pure and wholesome and the air is tonic in cases of feebleness and debility; while stomach and bowel troubles are unknown among infants and children are remarkably free from the insidious ills that wait on childhood; while rheumatism and skin and blood diseases vanish before the application of New Mexico's thermal waters; while all these and many others may be beneficiaries of the Territory's matchless climate, it is to the consumptive that this "land of sunshine" is emphatically the land of hope and health. The abundant electricity produces an unusual quantity of ozone from the oxygen of the atmosphere, and the pure, dry air, the ozone, and the balsamic exhalations rolling down from the pine-clad mountains, form an ideal natural medicament for all diseased air passages and mucous membranes, and they, in connection with the altitude, requiring greater lung activity, and the ceaseless sunshine, vitalizing every function of the human frame, will invariably cure consumption if it be taken in time, and if the health seeker avail himself of nature's remedies by a life of outdoor exercise.

There are more men in New Mexico who have recovered from consumption after having been given over by their doctors in the States than are to be found in all the rest of the country put together. They came here, they recovered, and they are now among the leading men of the Territory. Consumption among the natives is absolutely unknown, and the children of consumptive parents coming here from the East grow up without the taint.

NEW MEXICO THE WORLD'S GREATEST CLIMATIC RESORT FOR THE CURE OF CONSUMPTION, THROAT, AND LUNG DISEASES.

Consumption is the scourge of humanity, one death in every six being placed to its charge. When it is remembered what a mighty army of diseases death marshals against the race, and yet that a sixth of the slain is from this one disease, the fearfulness of its curse becomes appalling. It shows that for other diseases science has found remedies, but that against consumption all knowledge and efforts are helpless. Hereditary and contagious, and often originating apparently without either cause; sometimes skipping a generation or certain members of a family, but ever returning for a prey to their descendants; as the race increases and as the appliances of civilization are augmented, cutting wider swaths in the field of human life, and yet laughing to scorn all medical skill and proving obdurate alike to the discovery of the scientists and the nostrum of the charlatan—such is consumption, the invincible lieutenant of death.

STUDY OF STATISTICS.

For some time the gathering of statistics had shown that consumption is much more prevalent in certain sections of country than in others. For instance, the proportion has been stated as Maine 50, remainder of New England States 25, Minnesota 14, Southern States 6, New Mexico 3, the last being less than anywhere else in the United States. But the further study of statistics brought to light the fact that, taking the world over, the greater or less prevalence of consumption accompanied certain marked differences in climate; and soon the climates of greatest and least prevalence became accurately defined. From this it was but a single step to the conclusion that those climates in which consumption least prevailed, or, in other words, which most largely prevented the disease, would be the climates most conducive to recovery from it. This conclusion was the more readily reached because medical science, despairing of materia medica, had been for some time empirically experimenting in the matter of climatic cure.

CLIMATE THE ONLY CURE.

The study of statistics brought to light the fact that those sections were the least affected with consumption which combined the most thoroughly in their climates aridity, altitude, sunshine, scanty vegetation, and absence of extremes in either heat or cold. This much being established, in 1885 the medical congress of France appointed a committee to make a thorough examination in any part of the world that gave promise of the requisite climatic conditions in any considerable degree. It was agreed that the greatest equability was to be found in the valleys of a mountainous country, where of necessity there would be comparative immunity from the winds and storms which sweep over the plains and coast regions. The committee agreed that the proper temperature would be found between the thirty-second and thirty-sixth degrees of latitude, where the patient would not be exposed to the severe weather of the north or the enervating influences of the south. The altitude necessary to give the best degree of atmospheric pressure was held to be about 5,000 feet above sea level, as less altitude gives too much pressure and hastens the destruction of lung tissue, while a higher altitude subjects the patient to the danger of other complaints.

This committee visited Asia, Africa, and North and South America, and agreed that the Rio Grande Valley of central New Mexico was the locality wherein the

By Dr. Kornig, court physician of St. Petersburg: "I have found an increase in the red blood cells in patients who have gone to high altitudes, and I am inclined to attribute to this increase a large part of the benefit derived from mountain sanatoria."

By Dr. Jarvein, professor in the Military Academy of St. Petersburg: "After listening to the greatest authorities in Europe on the treatment of phthisis in mountain sanatoria I believe there can be but little doubt in the minds of those present that this is at present the only mode of treatment."

By Dr. Vivant, of Monte Carlo, Riviera, France: "The climate must be justly regarded as of value in the treatment of this disease (tuberculosis), and offers a certain number of features in common, viz: Pure air—that is, oxygen—in an unlimited quantity; and dryness—that is, absence of fogs, of air charged with moisture, to interrupt light, heat, and chemical action of the sun's rays."

ESPECIALLY NEW MEXICO.

Dr. George Halley, professor of surgery, Kansas City Medical College, says: "New Mexico possesses the seven great requisites of a sanatorium for the treatment of consumptive patients and those suffering from bronchial and certain forms of throat affections. First, a very dry aseptic air, experiment showing that the atmosphere is as free from harmful bacteria as that of midocean—the purest known to science. Second, a light atmospheric pressure caused by the high altitude of the country, and ample table-lands where the air has free movement and the rays of the sun uninterrupted play. Third, a maximum of sunshine and minimum of cloud. Fourth, a slight variation of temperature only between the extremes of heat and cold. Fifth, a minimum likelihood of sudden changes of temperature. Sixth, a light, porus, dry soil. Seventh (and very important), a low dew-point. I have sent many patients there, and the result has always been beneficial.

"It seems, at first sight, a long distance for patients to travel from France to New Mexico; but there is, I believe, no climate in southern Europe or northern Africa—the localities hitherto utilized for this purpose by Europeans—that can compare for a moment with that of New Mexico and parts of Colorado, for the treatment of consumption."

Speaking of the immunity of New Mexico from consumption, ex-Surgeon-General W. A. Hammond, United States Army, says: "New Mexico is by far the most favorable residence in the United States for those predisposed or affected with phthisis (consumption). In a service of three years in New Mexico, during which period I served at eight different stations, I saw but three cases of phthisis, and these were in persons recently arrived from elsewhere."

Dr. O. D. Walker, professor of physiology and diseases of the nervous system in the Keokuk Medical College, Keokuk, Iowa, and formerly physician in charge at the Government Indian school, Lawrence, Kans., makes the following interesting and valuable report of his observations in New Nexico: "I have carefully observed the salutary effects of this climate upon patients. A young lady, age about 18, came to me July 1, 1896, suffering from incipient phthisis. She was having night sweats, losing flesh, looked pale, and suffered from a very distressing cough. The microscope showed an abundance of tubercle bacilli. I used creosote and injections of Paquin's serum without marked benefit, and finally advised her to go to Las Cruces, N. Mex., which she did. Her cough rapidly improved, and the night sweats stopped; she gained 20 pounds in flesh in a few months and grew strong and hearty. I saw her in Keokuk July 5 last. She seemed to be perfectly well. Had she remained in the Mississippi Valley I think she would have succumbed to this then rapidly progressing disease within six months under any line of treatment."

"The highest interior of our continent comprised in the great table-land extending from the Great Divide in Colorado, through New Mexico, is not excelled anywhere in the world as a resort for consumptives. The altitude, the dryness, the purity of the atmosphere, and the large amount of ozone it contains, combine to create conditions very favorable to recovery from phthisis."—[Dr. Gatchell, in the Medical Era.

"The air here (New Mexico) is very dry, but its rarity is tonic and stimulating. The various altitudes and latitudes give a great variety of climates as to temperature and atmospheric tenuity, but all are alike in dryness."—[F. H. Atkins, M. D., S. B., in the Climatologist.

The Los Angeles Bullion says: "The climate of New Mexico leaves nothing to desire, and it constitutes an element of growth and prosperity in the future that is too important to remain neglected."

"New Mexico is fast becoming a favorite resort for consumptives, and as physicians learn more of its advantages it will grow still more rapidly in favor. Its uniform temperature, almost constant sunshine, and its dry, rare atmosphere are elements that commend this climate to our consideration."—[F. E. Waxam, M. D., professor of laryngology and rhinology, College of Physicians and Surgeons, Chicago.

"I think New Mexico surpasses any locality for consumptives I have yet visited, and I have been all over California, Colorado, the South, the Sandwich Islands, and Europe. * * * I am decidedly of the opinion that the region visited is, for consumptives, superior to any other part of the United States or the world, of which I have any practical knowledge."—[J. F. Danter, M. D., in Medical Visitor.

The Kansas City Medical Record, a high authority on such matters, in an editorial upon the subject of "Health resorts," speaks as follows: "It has been a great satisfaction to us to find our opinion regarding the sanitary characteristics of New Mexico indorsed in a most significant manner by some very high authorities on the subject. Some time ago a party of medico-scientists, commissioned by the Société Médicale of France arrived in New Mexico, after inspecting many parts of the world held in high esteem as winter and summer resorts for consumptives. Their object in thus journeying was to examine and report upon the sanitary qualifications of these different localities and countries, the end in view being the location of a large sanatorium for the treatment of consumption. The commission (with, we believe, the exception of one member, personally interested in another locality) reported upon New Mexico as in every respect better suited for such a purpose than any country they had visited, including far-famed Algeria and other places heretofore noted as health resorts, especially emphasizing the fact that a case of consumption was never known to have originated in New Mexico."

But the strongest proof, however, that the central part of New Mexico is superior to all other sections of the United States for the climatic treatment of consumption has just been given by no less an authority than the United States Government itself. The abandoned military reservation of Fort Stanton, in this Territory, has become by Presidential order the property of the Marine Hospital Corps, and the work of fitting the place up as a sanatorium for consumptives in the marine service is now in active progress. As soon as the buildings can be made ready for their reception all the consumptive patients in all the marine hospitals of the country will be taken there.

Surgeon-General Wyman says the establishment of such a sanatorium is a matter that he has had in mind for many years, his object being to place the patients where they will be under the best natural conditions and at the same time be isolated from the rest of the world, thus securing the maximum of advantage to the afflicted and the minimum of danger to the puplic.

The late Dr. Bratton, of the Marine Hospital Corps (already quoted from in this article), was stricken with consumption, and was restored to perfect health by a sojourn of two years at Albuquerque.

Dr. Bratton was instructed by the Surgeon-General of the United States to prepare a report upon the benefit of the New Mexico climate to consumptives, and also to make an examination of all the Government property in the Territory which there was any chance of the Marine Corps securing for a sanatorium for consumptives, giving his opinion about the different sites. He made an exhaustive report upon the subject, and agitation began for the donation of some Government reservation in New Mexico to the Marine Hospital Corps to be used as a sanatorium for consumptives.

This agitation resulted in the corps securing the abandoned reservation at Fort Stanton, with all its buildings and improvements, and the Surgeon-General considers it an ideal place for the purpose. Dr. Cobb, of the Marine Corps, is already on the ground with a strong force of laborers, and the work of putting the place in readiness for the reception of patients is progressing rapidly. There are thirty-eight good buildings on the reservation, and it is thought they will afford ample room to accommodate all the consumptive patients from the various hospitals now being used along the coast, and as soon as these buildings can be made ready for the reception of all patients of this class they will be taken there at once. It is hoped by physicians, and by the friends of humanity generally, that this experiment will do much toward pointing out the way to the ultimate control of this terrible malady.

It may be added to the foregoing that Fort Stanton is a beautiful place, the main buildings inclosing an open square several hundred feet in diameter. The ample grounds surrounding, which will be beautifully kept, will add much to the comfort and pleasure of the patients and invalids, and will enable them to spend the greater portion of their time in the open air and sunshine, which plays so great a part in the recovery from this terrible disease.

But the asthmatic or the consumptive is not the only invalid who may turn his eyes with hope to this mecca of the afflicted.

To the overwrought mentally or physically, to the run down from dissipation or disease, to the prostrated, whether from devotion to business or pleasure; to those who have lost appetite, lost the pleasures of sleep, lost interest in life, whatever the cause or reason—to all these New Mexico extends her hands of healing. Her bright skies and radiant sunshine; her pure, dry, rarified air, surcharged with electricity and saturated with ozone, tonic, and invigorant; her incomparable nights, cool, refreshing, delightful, making sleep the greatest of all luxuries, and absolutely incompatible with insomnia—these are the things that come of merely being in the climate and bring their blessings of quieted nerves, restored strength, increased flesh, regained appetite, and recovered sleep, just simply whether we will or not. Such are the climatic conditions of New Mexico, to which hundreds of people who have been benefited will gladly testify.

FOREST RESERVES.

Office of the Forest Superintendent,
Santa Fe, N. Mex., July 20, 1899.

Dear Sir: In compliance with your request of the 14th ultimo, I submit report of forest reserves located in the Territory of New Mexico, namely, the Pecos River and the Gila River forest reserves.

The Pecos River Reserve is located in the northeastern part of the Territory of New Mexico, containing 22 townships, with an area of over 431,040 acres, created a forest reserve by proclamation of Grover Cleveland, on January 11, 1892, and increased to its present size by President McKinley, May 27, 1898.

The objects of forest reservations established by the Federal Government are to protect and improve the forests for the purpose of securing a permanent supply of timber for the people and insuring conditions favorable to continuous water flow or supply. It is the intention to exclude from these reservations, as far as possible, lands that are more valuable for the mineral therein, or for agriculture, than for forest purposes; and where such lands are embraced within the boundaries of a reservation they may be restored to settlement, location, and entry.

The protection afforded the young growth of timber by the creation of a forest reserve can not be overestimated, and is of permanent and lasting benefit to the States and Territories in which they are located: First, for the munificent protection afforded continuous water supply and flow by retaining the snow in the mountains until a late period of the season, furnishing an abundant supply of water to springs, wells, and other sources of supply; second, the snow acts as a cover for the young growing shrubs and small growth of timber in preserving it until the warm rains of spring diminish the cover of snow; third, the protection in winter against the chilly blasts of frigid winds that sweep across the prairies, and it is a great protection and shelter to live stock and interests of mankind in general.

The Pecos River, from which the reserve takes its name, is the principal stream flowing through the reserve. Other streams abound, but none of the value and importance of the one described. An abundance of mountain trout are found in this beautiful stream, and during the summer season many tourists and residents of Santa Fe line its banks for a brief camping vacation, rest, and recreation.

The mountain ranges in this reserve are two—the Santa Fe and the Las Vegas—ranging in height from 8,000 to 13,306 feet above the sea level.

There have been many evidences of mining interests of great value in different parts of this reserve, but no effort has been made to prospect for same. Game abounds in much variety, such as wild turkey, grouse, squirrels, rabbits, deer, cinnamon bear, and mountain lion.

There are at present six forest rangers stationed upon ten districts within this reserve, guarding the interests of the forest with ability, integrity, and honesty. Each forest ranger is under the authority and orders of the forest supervisor, residing at Willis, N. Mex., overseeing all matters, conditions, and circumstances connected with his reserve. His superior officer is the forest superintendent, who is directly responsible for the management and conduct of all matters and of all reserves of Arizona and New Mexico, and whose headquarters are at Santa Fe.

The Gila River Reserve was created by proclamation, March 2, 1899, by President McKinley. This reserve contains 101 townships, and over 3,270,000 acres, located in the southwestern part of the Territory of New Mexico.

The boundaries of the tract are described as follows:

Beginning at a point on the boundary line between New Mexico and Arizona where it is intersected by the north line of township 5 south, range 21 west, New Mexico principal meridian, New Mexico; thence easterly along the township line to the northeast corner of township 5 south, range 16 west; thence southerly along the range line between ranges 15 and 16 west, to the southeast corner of township 8 south, range 16 west; thence easterly along the township line to the northeast corner of township 9 south, range 15 west; thence southerly along the range line to the southeast corner of said township; thence easterly along the township line to the northeast corner of township 10 south, range 10 west; thence southerly along the first guide meridian west, between ranges 9 and 10 west, to its intersection with the third standard parallel south, between townships 15 and 16 south; thence westerly along the said third standard parallel south to the southwest corner of township 15 south, range 16 west; thence northerly along the range line to the northwest corner of said township: thence westerly along the township line to the northeast corner of township 15 south, range 19 west; thence southerly along the range line to its intersection with the third standard parallel south; thence westerly along the third standard parallel south to its intersection with the boundary line between New Mexico and Arizona; thence northerly along said boundary line to the point where it intersects the north line of township 5 south, range 21 west, the place of beginning.

Excepting from the force and effect of this proclamation all lands which may have been, prior to the date hereof, embraced in any legal entry or covered by any lawful filing duly of record in the proper United States land office, or upon which any valid settlement has been made pursuant to law, and the statutory period within which to make entry or filing of record has not expired: *Provided*, That this exception shall not continue to apply to any particular tract of land unless the entryman, settler, or claimant continues to comply with the law under which the entry, filing, or settlement was made.

This reserve is of great magnitude, and its principal diverse interests are mining and stock raising of all kinds.

There is an abundance of game roaming over this vast area, and a number of streams furnish an abundance of water supply. The principal ranges of mountains are the Mogollon, San Francisco, Tularosa, Black, Little Range, and Diablo; the principal river is the Gila, the river from which the reserve takes its name.

The mining interests located within the reserve are very valuable, and are developed and worked to a large extent; and the live-stock industry is thriving and prosperous, contributing much to the wealth and prosperity of the Territory.

People who are thoroughly acquainted with the object of the creation or formation of forest reserves and their maintenance by our Government for their benefit can not overlook the great importance and numerous benefits accruing, and will always be the promotion of a great and lasting supply of timber and continuous water supply or flow, affording a protection to the young and growing forests, whose value is not to be estimated, considering the many uses of future value.

There are at present one supervisor stationed at Silver City, adjacent to the Gila River Reserve line, and one forest ranger patrolling a district within the reserve.

Within a few weeks a force of four more rangers, constituting a total of five, will be assigned to the forest districts throughout the reserve, under the supervision of the supervisor, patrolling, burning fire breaks, piling brush and logs preparatory to burning when a seasonable opportunity offers itself, and also guarding zealously the interests of the forest against timber-cutting depredations, and engaging in miscellaneous duties connected with the reserve.

At present all forest rangers of Arizona and New Mexico engaged on the forest reserves are supplied with a badge with the following inscription thereon: "Forest reserve. Ranger. Department of the Interior. U. S.," an insignia of authority as an officer of the forestry reserve force.

Recently the forest force of all the reserves in Arizona and New Mexico has been equipped—each forest ranger—with the following utensils for the performance of duties connected with forest fires and the construction of trails and roads leading throughout the reserves: Ax, shovel, pick, rake, brush hook, steel file, and fire bucket. These are very essential, and aid the progress of the construction of trails and roads.

Much progress has been made in the official supervision, and duties and matters connected therewith, since their first organization and experimental stage of last August, and much more is in contemplation for the future to place the forest reserves upon a lasting and enduring basis.

I have the honor to have complied with your request. Thanking you for the opportunity of relating a brief history of forest reserves and hoping for their ultimate success, and of our great and grand growing Territory, which wishes to enter statehood, with best wishes, I am,

Sincerely yours,

W. H. BUNTAIN,
Forest Superintendent.

Hon. MIGUEL A. OTERO.
Governor of New Mexico.

EDUCATIONAL.

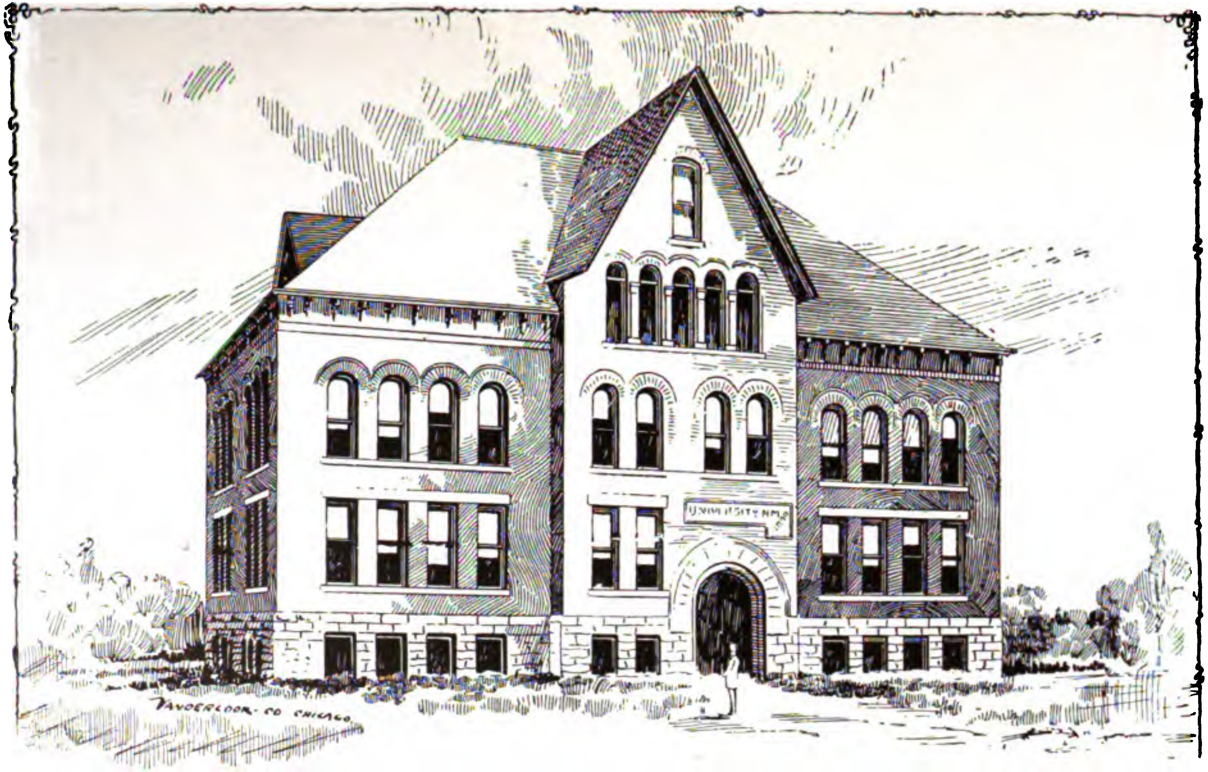
REPORT OF THE SUPERINTENDENT OF PUBLIC INSTRUCTION OF THE TERRITORY OF NEW MEXICO.

DEAR SIR: In compliance with your request, I have the honor to submit herewith a report of the condition of the public schools of this Territory at this date.

The first settlement of New Mexico was made in the sixteenth century by the Spaniards. From that period to the war wherein the independence of the people of New Mexico was proclaimed, being a little over two hundred and fifty years, the Spanish Government did absolutely nothing toward the education of the people of what was, under the Spanish régime, the viceroyalty of New Mexico.

From the year 1821 to the year 1846 New Mexico was a part of the Republic of Mexico. During these twenty-six years the condition of the people in this section was very little better than it was under the Government of Spain. They were far removed from the influences of civilization and were greatly oppressed in many directions. The Government of the Republic of the United States of Mexico did absolutely nothing for the education of her people. Thus illiteracy prevailed, and no effort was made to grant educational facilities to the masses of the people.

In 1846 New Mexico became an integral part of the United States of America, but for many years, owing to the peculiar circumstances prevailing, the great distance from the States, Indian wars, the civil war, and the remoteness from civilization, there was no general interest in education, and no public schools existed. Under the Mexican Government some private schools existed. The Catholic Church did good educational work and endeavored to reach as many children as possible, but the resources of the church were not sufficient to reach the masses. Many of the wealthier citizens sent their children to the States to be educated, but the masses of the people were forced by the circumstances under which they lived to pass through life without any knowledge of the simplest rudiments of learning. This state of affairs continued for many years after New Mexico became a Territory of the United States. The Federal Government neglected the educational interest of the Territory from the time of the acquisition of New Mexico until last year, when an act was passed granting aid in the shape of a donation of public lands to the public schools and the higher educational institutions.



UNIVERSITY OF NEW MEXICO, ALBUQUERQUE.

The people of the Territory, however, through their legislative assembly, made a commencement toward a system of public schools in the year 1872, but an efficient public-school law was not passed until the year 1891. Since then the public-school laws have been greatly improved, and to-day the laws relating to public schools are liberal and comprehensive. It is found that our people are wide awake to the benefits of education and are anxious to give it to their children. The school attendance is increasing year by year and the management of the public schools is satisfactory and efficient in a vast majority of the districts.

In the year 1872 the Territorial legislative assembly for the first time enacted a law establishing public schools, and provided by taxation for their support, and from that beginning each successive legislature has labored earnestly and faithfully to build up a public-school system, increase its efficiency, and give each child in the Territory an opportunity to secure a good common-school education. Of course the first laws were crude, but improvement came with experience. Under the first law each county had five county school supervisors, but they could not by any means look after the interests of the schools in their respective counties as they should have been looked after, as the counties were very large, some, indeed, larger than some of the New England States. At that time also taxable property was limited, and the work of perfecting the school system was slow and laborious. The population was then very much scattered, and is still to-day in that condition, although not to such a great extent as during the seventies and eighties. Nevertheless under these trying circumstances schools were established in nearly every precinct in the Territory, except where hostile Indians prevented.

In 1884 the legislative assembly revised the school laws to a great extent, really enacting new laws, and establishing the office of county superintendent of the public schools, and enumerating the branches to be taught, as follows: Orthography, reading, writing, arithmetic, geography, grammar, and history of the United States. By this new law the school districts and the district school directors were created, and school districts were made corporations and given corporate rights. The law provided for a tax levy on all taxable property in the Territory not to exceed 3 mills on the dollar of the assessed valuation. This new law really opened the way for the foundation of a comprehensive public-school system, and the census of 1890 showed a decided falling off of the number of illiterates.

The legislative assembly of 1891 again amended and enlarged the scope of the Territorial school laws. A Territorial board of education was established, consisting of the governor of the Territory, the superintendent of public instruction (this office was created by this act), the president of St. Michael's College, and the president of the Agricultural College at Las Cruces. The duties and powers of this board are such that it has an opportunity to greatly advance the work of education, to keep in touch with the educational work of the several counties, and to exercise a general supervision over the acts and doings of county superintendents and district school directors.

The superintendent of public instruction is an official appointed by the governor and confirmed by the legislative council, and, under the law, must visit the several counties of the Territory each year, inspect the public schools, keep in touch with the county superintendents of education and with the principals of the city schools, making reports to the governor of all things connected with each public school system, suggest reforms and alterations in the law, and generally supervise educational work in the Territory. Under this law the Territorial board of education has a very important duty to perform, which is the selection, every four years, of a uniform system of books to be used in the public schools. This one proviso alone was, and is, the cause of great improvement in our schools. Prior to 1891 the different counties and incorporated towns used different school books. Since the enactment of the present law uniformity has been obtained, and the books used are of a superior standard.

Much good has resulted from the work of the board of education and the office of superintendent of public instruction. Many reforms have been instituted, and many more are contemplated. The law of 1891 provide "That school boards must provide schoolhouses, teachers, fuel, and necessary supplies for the schools," and provides for a tax levy on the taxable property of each district not to exceed 5 mills on the dollar on the assessed valuation of all the property in the district. It also directs that the Territorial auditor shall levy a tax not to exceed 3 mills on the dollar on all of the assessed valuation of the property in the Territory. This is collected by the county treasurer and apportioned by the county superintendents to the different school districts of the county on the first Monday of January, April, and June, and such apportionment is based upon the number of children of school age residing in each district. The funds so derived are expended for teachers' salaries, printing, and the salaries of county school superintendents. In addition to this, the school funds of the several counties receive part of the fund from licenses issued, also all the fines assessed for violation of the law, and the licenses collected for the privilege of selling liquor. There is also a poll tax of $1 levied on each able-bodied male person for school purposes. It will thus be seen that the people of the Territory are taxing themselves very heavily for the support and maintenance of the public schools and the education of their children.

The law provides for the holding of a county institute for teachers for at least two weeks in every school year in every county, and makes it compulsory upon the teachers to attend the same. At such institute instruction is given to teachers in the branches to be taught in the schools and in the best methods of teaching. The attendance of children between the ages of 8 and 16 years is made compulsory by law.

As to the money collected for school purposes since the first school law went into effect, it is only practicable to give a correct statement since 1891, as the records of the Territorial auditor's office prior to that time were partially destroyed and greatly mutilated through a fire which destroyed the Territorial capitol building, wherein this office was situate, early in the spring of 1892.

It is found from the records that in 1891 the amount of money raised for schools from Territorial taxation was $85,192.17. The average daily attendance for the Territory was 12,397 pupils. The number of teachers employed was 407. The average daily attendance at each school was 34 pupils.

In 1895 there was raised for the public schools $154,107.38. The number of teachers employed was 538; average daily attendance for the Territory was 15,081 pupils; average length of school term, four months; average daily attendance at each school was 28 pupils.

In 1898 the amount of money raised for school purposes was $182,172.18; number of teachers employed was 541; average daily attendance for each school was 30 pupils; average daily attendance for the Territory was 16,558 pupils; average number of months taught, five. It will thus be seen that the average daily attendance of pupils has increased 4,161 in number in the past seven years. This is a progress of no mean degree when it is taken into consideration that in many of the precincts and school districts settlements are very scattered, ranches are far apart, and the children have to travel many miles to reach schoolhouses. Surely this is progress of no mean degree.

In addition to the public schools of the Territory there are at present in active and successful operation the following Territorial institutions: The Agricultural College, at Las Cruces, with two substations, one at Las Vegas and one at Aztec; the University of New Mexico, at Albuquerque; the School of Mines, at Socorro; the Normal University, at Las Vegas; the Normal School, at Silver City, and the Military Institute, at Roswell, and the School for the Deaf, Dumb, and Blind, at Santa Fe. These institutions during the last past school year have had 405 scholars attending them.

The value of the property embraced in the above institutions is $191,025.45. This in a Territory that had no public-school system before the year 1872.

As to sectarian schools, the Catholic church has eighteen of them in operation, attended by 1,602 pupils, employs 72 teachers, and has school property to the value of $231,700.

The Methodist Church supports eleven schools, attended by 462 pupils, and has school property valued at $10,000.

The New West Educational Commission supports five schools, attended by 219 pupils, employs 7 teachers, and has school property to the value of $44,000.

The Presbyterian Church supports twenty-five schools, attended by 1,105 pupils, employs 25 teachers, and has school property to the value of $37,900. The average number of months taught by the sectarian schools is nine months in the year. These results have all been attained by the people of New Mexico through their own efforts and without any Government aid. This showing, while not as creditable as we would wish, is at the same time one of which our people can well be proud. Children to the number of 3,152 attend the sectarian schools. This fact always counts against the Territory when statistics are compiled, because these are based upon the number of children of school age and attending the public schools.

The total average daily attendance for the Territory is 20,273 pupils, counting the attendance at the sectarian schools as well as the attendance at the public schools and at the higher educational institutions. The number of pupils enrolled in the public schools of the Territory during the last school year was 23,061, which, added to the number attending sectarian schools, brings the number of children attending school in the Territory up to 26,776.

It can readily be seen that this attendance must greatly reduce the per cent of illiteracy within a few years, and I look forward to the coming census to demonstrate the fact that this has been reduced. From the best information at hand at the present time I judge the illiteracy has been reduced to 15 per cent.

New Mexico is fast moving forward in the line of education, and those who think we are sleeping in this matter will find themselves mistaken and, I hope, agreeably disappointed.

Many of the public-school buildings in the Territory would be an ornament to some of the rich and populous States of the Union. The buildings and institutions maintained by the Territory are handsome and commodious and furnished with all modern improvements. In all the Territorial institutions libraries have been established and are being added to yearly as opportunity offers and funds allow.

During the coming school year I expect a still more rapid improvement, as railroad facilities in the Territory are increasing and it is becoming easier and cheaper to travel. People from the country are becoming more accustomed to sending their children to the city schools, which, of course, will increase the average attendance.

In this report I have not counted the Government Indian schools maintained at Santa Fe and Albuquerque and at the Navajo and Mescalero Indian reservations and at the several pueblos of Jicarillas, Apache, and Pueblo Indian agencies. I have only considered the free public schools and the institutions maintained by taxation by the Territory.

Neither have I made notice herein of private schools established in the larger towns of the Territory, for the reason that I have received no reports from such. I estimate the attendance of these private schools at from 250 to 300 pupils, but I have not added these figures to the number given heretofore in this report, as I desire to be guided simply by official facts and figures.

Upon the whole, I believe that the people of New Mexico have no occasion to be ashamed of the progress made within the past eight years in their public-school system.

Very respectfully,

Manuel C. de Baca,
Superintendent of Public Instruction.

Hon. Miguel A. Otero,
Governor of New Mexico, Santa Fe, N. Mex.

IMPORTANCE OF EDUCATION.

Investigation, agitation, discussion, and progress are characteristic of the age in which we live. Popular education, which lies at the foundation of popular government, is attracting greater attention each year on the part of all persons who look to the common people as the real source of power. To all such persons the free common schools stand out prominently as the mightiest factor in the training of that intelligent citizenship which is absolutely necessary to the welfare and perpetuity of a free government. It is a difficult matter for anyone to realize the size and importance of the vast army employed in the public schools of the United States, or to have conception of the greatness and grandeur of the common schools.

DISTRICT SCHOOLS.

A limited investigation will make it plain to anyone that lack of organization and system is to-day the greatest source of weakness in the district schools. While all incorporated towns and cities in the country have recognized the necessity of systematic work, and have effected proper organizations with carefully prepared courses of study, made effective by proper and efficient supervision, the rural school, in which are found a great majority of the entire enrollment of the Territory, are in many instances almost without organization, system, or supervision. All this is due, in a great measure, to the imperfection of the present school law. It is, however, an undeniable fact that under the present law wonderful results have been accomplished since its enactment, but it has failed to keep pace with the progress of the times. What was good enough ten years ago is not good enough now. The time has come when the legislature should take the law in hand and amend it in a great many particulars, especially in the matter of granting more power and authority to the various county superintendents. Under the existing laws they have no power or authority to prevent or correct evils of any nature. They should be clothed with full authority to investigate and approve all contracts of whatever nature, for whatever purpose, before any school funds are used; to suspend any teacher or school director for cause, and to have full control over the supervision of all the common schools in their counties, and to be subjected to a penalty for a failure to comply with their duties. At present a county superintendent is a mere figurehead, with no power or authority unless it be to sign warrants for the payment of the teachers' wages.

In spite of all the disadvantages under which we have had to work, it is a matter of sincere congratulation to all the friends of public education to know that great progress has been made during the last few years in educational matters throughout the Territory. This is especially true as to our city schools, where funds have been ample to secure the services of competent superintendents and teachers.

Our city schools will compare favorably with those of any city in the Union. The teachers are graduates of some of the best institutions of learning in the United States, and fortunate indeed have been our city boards of education in securing the services of such competent instructors.

TERRITORIAL INSTITUTIONS.

I beg to call particular attention to the reports of our Territorial institutions of learning. They will be found as a part of this report. The Territory boasts to-day of a university, a school of mines, a college of agriculture and mechanical arts, two normal schools, a military institute, and a school for the deaf and dumb and blind.

These institutions are thoroughly equipped in all particulars and have met with most satisfactory progress. The attendance is increasing from year to year, and their fame is spreading all over the country, as is proven by the students who are coming to attend from without the limits of the Territory.

TERRITORIAL CERTIFICATES.

Our present school law contains no provision for the granting of Territorial certificates. The laws of all the States in the Union contain such provisions, and it is earnestly to be desired that our next legislature will grant authority to the Territorial board of education to grant Territorial certificates to such teachers as may be entitled to them on account of their long and successful career. There are many well-known educators in our Territory whose services in the cause of education have been so valuable that they are entitled to the honor of having in their possession life certificates entitling them to teach in any section of the Territory.

ATTENDANCE.

The statistics of school attendance are watched with much interest, because they indicate the appreciation in which the schools are held by the people.

I am pleased to report that there is a marked increase in the enrollments and attendance in nearly all of the schools of the Territory.

EXAMINATION OF TEACHERS.

In looking over the great field of public education in the United States we perceive that while in general the work has been with the same common aim, which is the diffusion of secular knowledge and civic virtues among the people, at a particular epoch in the history of education in the several States efforts of educators assume varied directions.

In the formative epoch their energies are employed in securing legislation looking toward the creation and preservation of their system.

When this has been attained and the schools have been placed on a solid foundation, the main object is to convince the people of their necessity and to prevail upon parents to send their children to them regularly for a certain period during the year. In New Mexico we are yet in the formative state in our educational development, because the want of sufficient revenue has somewhat retarded our progress. In the formative period emphasis is especially placed upon securing a sufficient revenue to maintain and improve the system. The most important duty is to select and support a corps of properly qualified and efficient teachers. It is my opinion that the efficiency of the schools would be greatly augmented by the organization of a permanent board of Territorial examiners, for the purpose of passing upon the qualifications of all persons presenting themselves to be examined for positions to teach in the public schools of the Territory, such a board to be composed of persons of experience in teaching and in school work of the Territory; and by reason of the further experience to be acquired in this particular work they would be accounted the most reliable authority in determining the value of the answers submitted to them. I am confident that a system of this kind would insure the employment of teachers upon the ground of their fitness, scholastically, morally, and socially, and would redound to the greatest possible improvement in the schools of the Territory. The certificates to teach thus obtained would be valid in every county for the period for which they would be issued, and would free their holders from the annoyance of frequent examinations, to which they are now subjected. Provision should be made establishing a limit to teachers' certificates of all grades. Under the present law they are valid indefinitely.

If a Territorial board of examiners be provided for, it would not be absolutely necessary for all candidates to appear in person for examination. The questions prepared by the board could be sent to some reliable person in each district, before whom the candidates could answer the questions in writing, and after the same had been examined by the Territorial board, a certificate would be issued according to the merits of each candidate.

SCHOOLHOUSES.

Some of our school districts, towns, and cities have erected handsome and commodious schoolhouses. Among others may be mentioned Clayton, Taos, Albuquerque, Socorro, Deming, Silver City, Gallup, Eddy, Roswell, Las Cruces, and others. These schoolhouses are models of neatness, cheerfulness, health, and comfort. They are pleasant homes for the pupils, make school attractive, and change the work from a disagreeable task into a welcome privilege. Our incorporated cities have erected schoolhouses some of which are perfect specimens of the improvements of modern school architecture.

TEACHERS' INSTITUTES.

The utility of teachers' institutes as a means of increasing the efficiency of the teaching corps and arousing public sentiment in favor of public education is becoming from year to year more generally recognized.

Institutes of this sort, to be productive of good, must be understood and appreciated. They must be adopted from choice and not from compulsion. Educators and school officials will always be found to advocate and favor whatever attempts to promote the good work of public education. There are many good reasons for holding these institutes. All States which provided for them early in the history of the public school system have adhered to them more closely as time has progressed. They are regarded as an essential part of the general work and school legislation of the State. Everywhere it is held to be as binding on the teacher to attend the institute, at least once a year, as it is for the child to go daily to school during the term. These institute meetings become popular wherever they are held; the people approve them because by their means they are enabled to perceive the character of the teaching and the methods followed in the training of their children. They are thus instructed themselves, and induced to renounce many prejudices that they may have entertained. The great object of institutes is to instruct teachers in the philosophy of their profession. Lectures are delivered to point out how the teacher should conform his teachings to the laws of the development of the child's mind.

It is clearly the duty of the Territorial legislature to provide the means for institute work. During the past year almost every county in the Territory held an institute. The attendance was fair and the work accomplished very satisfactory. When the Territory provides the means with which to conduct the institute the attendance will be more than double, and many poor teachers who could not otherwise attend will get the benefit of such reunions. I suggest that the Territory be divided into five institute districts and there be appointed by the Territorial board of education a district conductor for each separate district; that all rules and regulations for the conduct of this institute be made by the Territorial board of education, and that for the defraying of the necessary expenses of the work the legislature appropriate an amount which it may deem sufficient.

Our law concerning normal institutes is a good law, but it is weak in two particulars. It imposes no penalty for nonattendance and requires the teachers to pay a fee for the defraying of the necessary expenses of the institute. The latter many teachers can not do. If the law is amended so as to impose a penalty for nonattendance and a small sum of money set aside from the general school fund, say about $100 from each county, for institute work, the attendance will be more than double and the results will be very gratifying.

SCHOOL DIRECTORS.

The present law provides that school directors when once elected shall remain in office until their successors are duly elected and qualified. Under this law numerous abuses are committed for the reason that the directors are the same persons empowered to issue the call for elections and to hold the same. In a great many instances no elections are held at all, and consequently the directors perpetuate themselves in office indefinitely. Unless the law is properly amended abuses will continue to be committed, as there is no power to remedy the evil except by invoking the aid of the courts.

In this connection I would respectfully suggest that a law be passed requiring all county superintendents to have their offices in the county seats of their respective counties. Quite a number of our present superintendents have their offices in remote places, which causes great inconvenience to all parties interested in school affairs.

UNIVERSITY OF NEW MEXICO.

The University of New Mexico was established by an act of the Territorial legislature of 1889, and the location of the institution fixed at Albuquerque, N. Mex. As soon as funds would permit, the regents secured the necessary area of land required by the enacted law and commenced the construction of the building. In May, 1892, the structure was completed and accepted by the board of regents. On June 15, 1892, the normal department of the university was opened for students, and during the following September a preparatory department was opened. This institution has been in successful operation five years, having conferred during this time fifteen diplomas of graduation in the regular courses and many certificates of satisfactory work in the more limited courses of study. The standard of work has risen steadily, and the facilities for the study of the liberal arts and sciences are being continually increased to meet the growing demands of the community. Material development has kept pace with internal growth, and the university, with its commodious buildings and growing apparatus and library, can now offer better facilities for study and scientific research than ever before, embracing a wide variety of subjects taught by specialists in every branch.

The University of New Mexico, located at Albuquerque, is the natural and logical head of education in the Territory. It is equipped and supported wholly by Territorial appropriations and receives ample support. It is expected that when New Mexico secures statehood the university will receive a liberal grant of public lands, as similar institutions in other States have, when its usefulness will be very much increased.

There are three departments—the academic, commercial, and normal—the latter having been organized with the special view of training competent teachers for the public schools. Admission to the academic course is either upon a certificate from some other school of acknowledged thoroughness or upon examination in English, history, grammar, and arithmetic.

During the past year the board of regents built a substantial gymnasium and equipped it with the best apparatus obtainable. The results of training in this line have been closely noted, and have proved satisfactory in every respect.

Good board can be obtained in Albuquerque for $20 per month. At the present time the university has no work at its command for students, but a number of students have found congenial employment about the city from which they have been able to defray a large portion of their expenses. During the coming year a special effort provision be made so that we may have a building fund of not less than $20,000 provided in addition to the money now appropriated. If we could double the number of students in attendance they could be instructed and cared for with no great increase of ordinary current expense."

It is true that in consequence of the former report and the statements therein contained the legislature did attempt to provide a means for the board of regents to obtain funds for building purposes, as will be seen by reference to Chapter LXII of the laws of 1897; but it has been quite impossible up to the present time for the board to obtain any money under the provisions of that statute.

Very respectfully,

F. W. CLANCY,
Secretary and Treasurer.

Receipts and expenditures during year ending October 31, 1898.

RECEIPTS.		
From Territory	$12,440.00	
Tuition fees	275.00	
Laboratory fees	50.00	
		$12,765 00
EXPENDITURES.		
Salaries	10,613.16	
Expense	433.97	
Building	8.00	
Improvements	23.85	
Fuel	830.75	
Furnace	2.00	
Insurance	753.00	
Repairs	96.60	
Furniture and fixtures	33.00	
Laboratory	230.75	
Natural history	14.50	
Library	359.97	
Gymnasium	200.46	
Water	63.20	
Scientific apparatus	265.95	
Advertising	272.30	
Bacteriological laboratory	52.08	
Stationery	4.80	
Telephone	24.00	
Commencement, 1898	121.88	
		13,903.52
Excess of expenditures over receipts		1,138.52

THE NEW MEXICO MILITARY INSTITUTE.

The youngest, most vigorous, and most thoroughly typical of all the Territorial institutions is without doubt the military school at Roswell. Though it has received less money than any of the schools, costing the Territory less than $30,000 to date, the results have been almost phenomenal. The regents make a biennial report to the governor, and an annual inspection by the adjutant-general is required by law. Chiefly from the last report of the regents (January 2, 1899) and from the report of the adjutant-general (May 12, 1899) the following is compiled:

The legislature of 1895 authorized the issue of bonds to the amount of $15,000 to erect suitable buildings for the military institute, and an annual tax levy of twenty one-hundredths of one mill for the school's maintenance. The National Congress of 1895–96 failed to legalize the acts of the preceding New Mexico legislature, and in consequence it was impossible for the regents to negotiate the said bonds, so that it was not until June, 1897, that they were finally sold and the proceeds rendered available.

From February, 1896, to June, 1897, however, the regents received from the auditor a total of $8,342, of which sum $2,748.33 had been expended previous to January 1, 1897, in the erection of a waterworks plant, pump house, machinery, and necessary outbuildings, fencing the grounds, and various minor incidental expenses, which will be found carefully itemized in the regents' report to Governor Thornton, December 31, 1896.

Thus on June 2, 1897, the regents had available the following:

Proceeds from sale of bonds	$14,250.00
Unexpended balance of total received from auditor	5,593.67
Total	19,843.67

Pending the negotiation and sale of bonds, plans for school buildings had been accepted, surveys had been made, the grounds fenced, planted, and irrigated, the waterworks system constructed and operated, and all things as far as possible made ready for the erection of necessary school buildings.

Work was promptly begun after final sale of bonds and in March, 1898, the school buildings were accepted.

The main building is of brick, trimmed with red sandstone, three stories, with additional basement story of gray limestone, containing four large section rooms and study halls, forty-five bedrooms, library, and offices, a large mess hall, kitchen, laundry, armory, storerooms, closets, and bathrooms.

The system of waterworks and sewerage is very complete, afford hot water and cold water on every floor, plunge baths and shower baths, and complete drainage. The water-closets are the best obtainable; the 10,000-gallon tank, with bottom 52 feet from the ground, gives a pressure sufficient to throw water over the main roof and sweep the main sewer at pleasure. This sewer ends at a much lower level 500 yards away.

The entire building is piped for gas and every room, hall, and stairway is so lighted. The acetylene gas plant is cheap, safe, and very effective. The generators are placed 100 feet from the building and give a total of 2,500 candle power at a cost of about $1 per night.

The building is heated by steam, the large boiler being located in basement near the closets.

The contractor lost something over $1,000 and his time, but the Territory has one of the best school buildings in the West.

In January, 1898, the regents employed James G. Meadors as superintendent, and in March following he reported for duty and set about the organization of the school.

In April, 1898, four additional instructors were employed and ordered to report for duty the following September.

The usual circulars and advertisements were printed and industriously circulated and the superintendent ordered to make a vigorous personal canvass of the entire Territory. This was done with great effect and at insignificant expense.

During the spring and summer the buildings were completely furnished with the best equipments obtainable for a first-class boarding school, and the schoolrooms with the best desks and seats now in use.

One of the regents, an experienced merchant, was sent East and gave fifteen days of his time to purchase of furnishings.

The furniture, bedding, kitchen, laundry, and dining-room equipments are not only the best obtainable by the regents for the money tion with the fidelity of the regents, the management of Superintendent Meadors, and the efficiency of the instructors. He pronounced it the "leading Territorial institution" and the "most representative school in the West."

Acting under Special Order No. 4, dated Santa Fe, May 4, 1899, the adjutant-general made his annual inspection of the New Mexico Military Institute as required by law. In his report to the governor, dated May 12, 1899, he says:

> The inspection was made on the 8th day of May, 1899, and was as thorough in every respect as the same could be made. The notice to the superintendent of the intended inspection was received by him on the same day of my arrival in Roswell, so that there was but little time for preparation, and the conditions I found must necessarily have been the ordinary or normal condition of the institution. I inspected every room in the building, beginning with the dormitories. I found the bedsteads used were of cast iron, made for one person, each room being occupied by two students. I tumbled the bedding off and closely examined the mattresses and bedding, and found the same fresh and clean and free of vermin. The floors and walls of the buildings throughout showed most cleanly care. Especial attention was given to an examination of the closets and the drainage therefrom. I found that a sewer pipe had been extended from the school building in a southeast direction to the river, affording perfect drainage from the closets and bathrooms. The plumbing seemed to be in perfect order, and I was unable to detect any bad odors in or about the closets, or about the entire building.
>
> I made a close examination of the groceries and provisions found on hand, and in every instance found the quality excellent and free of adulteration. I dined at the institution and was served with the same kind of food that was given the students. I found the food plentiful, well cooked, well seasoned, and in fact just such a dinner as may be found in the homes of people of middle life all over the country.
>
> I witnessed an exhibition drill of the cadets, both in company and battalion formation, and was greatly pleased with their movements, which showed excellent instruction and discipline. I made a careful inspection of the cadets, of their arms, accoutrements, and uniforms and found all in good condition. The arms furnished by the Territory are kept in a room in a basement set apart for that purpose, and appear to receive good care. I found 65 cadets present for duty, and they appeared very proficient in the most recent system of tactics, and even the smallest cadets were familiar with modern tactics, the manual of arms, and the advanced bayonet exercises especially adapted to the Krag-Jörgensen rifle.
>
> The college building is a handsome substantial structure of brick containing three stories and a basement, situated about one-half mile north of the business center of Roswell. The grounds extend over 40 acres of land overlooking the town. The situation is a beautiful and a healthy one. The building contains 30 nice, airy, wholesome bedrooms, besides class rooms, office, kitchen, dining room, pantry, laundry, bathroom, and closets. The furnishings are comfortable and substantial. The recitation rooms are equipped with excellent twentieth-century chair desks, which are said to be the most comfortable now in use. The building is heated by steam throughout from a large boiler in the basement, and there is a good supply of hot and cold water on every floor. The building is lighted by an excellent acetylene plant located about 100 feet away. The water supply is furnished by a tank of 10,000 gallons capacity, which is kept filled by means of a steam pump.
>
> An examination of the course of study reveals the practical nature of the school. Four years of preparatory work are required, so that any student can enter who knows how to read, write, spell, and apply the fundamental rules of arithmetic. The preparatory course is followed by four years of collegiate work. The studies are such as are usually found in institutions of like character. The text-books in use in the preparatory course are those adopted for use in the Territorial public schools. In addition there is taught the art of war, the manual of arms, and in fact everything usually taught in high-class military schools. Especial attention is paid to proper gymnastic exercises and reasonable and healthful athletic sports necessary to the physical, mental, and moral good of the students.
>
> There are employed in the institute a superintendent, commandant of cadets, three instructors, matron, engineer, two cooks, janitor, and laundryman at a cost of $6,000 per annum. The superintendent, Maj. James G. Meadors, is a graduate of Washington and Lee University, of Virginia, and is a gentleman of fine culture, full of energy and zeal, devoted to the institution, ambitious to succeed,

> and, if properly supported, will make the institute so successful that every citizen of New Mexico may well be proud of it. The success already attained, the progress made in a single year, is highly creditable to the superintendent and to his able assistants, as well as to the people of Roswell, who take great and commendable pride in the institution. Mr. J. W. Willson, commandant, a graduate of the Virginia Military Institute, is an excellent man for the place. Of the other instructors, Mr. W. S. Fitzgerald, a graduate of Vanderbilt University; Mr. W. H. Whitten, graduate of Massachusetts Institute of Technology; Mr. L. Martini-Mancini, graduate of military school of Italy, ex-lieutenant of cavalry, I saw but little. They are all gentlemen of fine appearance and address, are represented to be excellent instructors, and give to the superintendent a hearty and loyal support. Mrs. Meadors, the matron, is an excellent, kind-hearted lady, who gives her whole time and care to the institution, takes great pride in the success of her husband's administration, and contributes very materially to such success. * * *
>
> The institute is provided with 80 Springfield rifles, calibre 45, and their accoutrements. These were furnished some months ago under your order, although the institute was not entitled to them under any law in existence. They are simply regarded as a loan until such a time as the necessities of the National Guard may require their return. In my opinion provision should be made by law for properly equipping the institute with arms. The Springfield rifle is not at all suited to the younger cadets, being entirely too heavy. They should be supplied with a piece of modern artillery, sabres, and other arms necessary to teach and illustrate the art of war.
>
> The eminent success of the institute in this the first year of its existence gives great encouragement for the future. This hope, however, may be frustrated by a failure to make prompt provision for its immediate necessities and for its expansion. Already the dormitories are filled to the limit of their capacity. There are 30 students in attendance who live or board at Roswell, outside of the institute. I regard it as of the utmost importance, and necessary to the success of the institute, that all students should reside in the barracks.
>
> There is an immediate demand for more commodious quarters. The institute should be provided at once with 30 more bedrooms, a room for a library, gymnasium, society halls, and storehouse. The laundry should be removed from the basement and placed in a separate building. I am aware that much of this can not be accomplished without legislative authority, but if there exists authority in the board of regents to provide for the more pressing needs of the institute by the construction of a temporary board structure, I should strongly recommend its exercise. (Report of Adjutant-General to Governor Otero, May 12, 1899.)

The New Mexico Military Institute has thus within a single year completely filled the quarters provided and which were expected to suffice for a dozen years, and fully refuted the almost slanderous assertion that the native population cares nothing for education and has not yet become an assimilated part of the Republic. The governor is convinced that the superintendent of the New Mexico Military Institute correctly appreciates the situation. In a recent interview he said:

> Our course of study really embraces eight years, four of which are preparatory and four collegiate. The latter four are modeled upon the West Point course, as far as we are able. We give in the collegiate work four years in mathematics, two years of scientific work, three years in Latin, two in German, three in Spanish, and four in English. We think that it is now of vast importance that young men should know thoroughly the English and the Spanish languages; have a sound business training, but a training of habits and methods as well as mere knowledge of details; have some ideas of practical construction and even of fortification, and a fair knowledge of military tactics. We think our commercial relations as well as government service will presently require large numbers of young men with just such training, nor can we fail to note the analogy between present conditions and those which have obtained for more than a century in British India, where there has always been a demand for young men thus trained. As to New Mexico, I do not see a particle of difference between the cadets of Spanish and Anglo-Saxon extraction. After twenty years' experience in the management of school boys I cheerfully attest that I have handled none more tractable, more decent, better mannered, more intelligent, or more thoroughly in earnest than these Spanish-Americans. Of course all influences to which they are subjected are intensely Americanizing, but I find them, to begin with, profoundly patriotic.

It is well to note here that fully 95 per cent of the inhabitants of Chaves County, where the institute is located, are Anglo-Saxon, and a large majority originally from Southern States, where race prejudice is supposed to run high.

All points considered, the governor thinks that the military institute is the most hopeful sign and the most convincing argument, educationally, that could be adduced as to New Mexico.

Hundreds of reputable witnesses attest that there is no better commissary at any eastern school; that the military work is thorough and according to modern usages and standards; that the instruction is excellent, the discipline thorough, the treatment of all fair, just, impartial, and absolutely honest.

It would be impossible to find a better location for a military school, as there is practically neither rain nor snow during the entire session, and hardly a day when the sun does not shine. The great abundance of excellent water at Roswell, the great number of orchards, trees, and variety of industries are also great advantages.

The earnings of the institute for the year ending June 7, 1899, exclusive of funds from the Territory, were something over $9,500, derived entirely from tuition fees. The disbursements for the year are reported as being about $23,000. It is the governor's opinion that affairs are economically administered, and the entire management energetic and effective.

Without prejudice or undue partiality, the conviction is forced upon a calm observer that such a school in such a country, properly managed, will accomplish great results, and beyond a doubt the military institute at Roswell has not only fully realized the most sanguine hopes, but has more than tripled conservative expectations and demands.

The New Mexico Military Institute is owned and supported by the Territory of New Mexico, and was first opened for students in September, 1898.

The institute is located at Roswell, 3,700 feet above the level of the sea, in the best-watered region between the Indian Territory and California. The climate is perfection—little rain or snow during the session, dry atmosphere and perpetual sunshine.

The school receives about $12,000 annually from the Territory and during the session of 1898–99 earned $9,500 additional in tuition fees, enrolling 105 cadets.

Buildings, etc., cost $30,000; thoroughly furnished and equipped, four stories, gas-lighted, and steam-heated; hot and cold water on all floors; modern bath, lavatories, and closets; complete system of waterworks, sewerage, and fire apparatus. Everything new and modern.

There are five men instructors, who are graduates of the best colleges. Health and development of students carefully looked after; ample facilities for all athletic exercises; daily drill, regular sleep, diet, and exercise; surgeon regularly employed. No better subsistence department in the Union; good, abundant food, clean rooms and beds.

The course of study embraces eight years, and includes English, Spanish, Latin, German, French, mathematics, and natural sciences. Instruction in bookkeeping, typewriting, and stenography in both English and Spanish.

No politics, no sectarianism, no extravagance. Students must remain within the inclosed limits day and night. Excellent discipline and moral training.

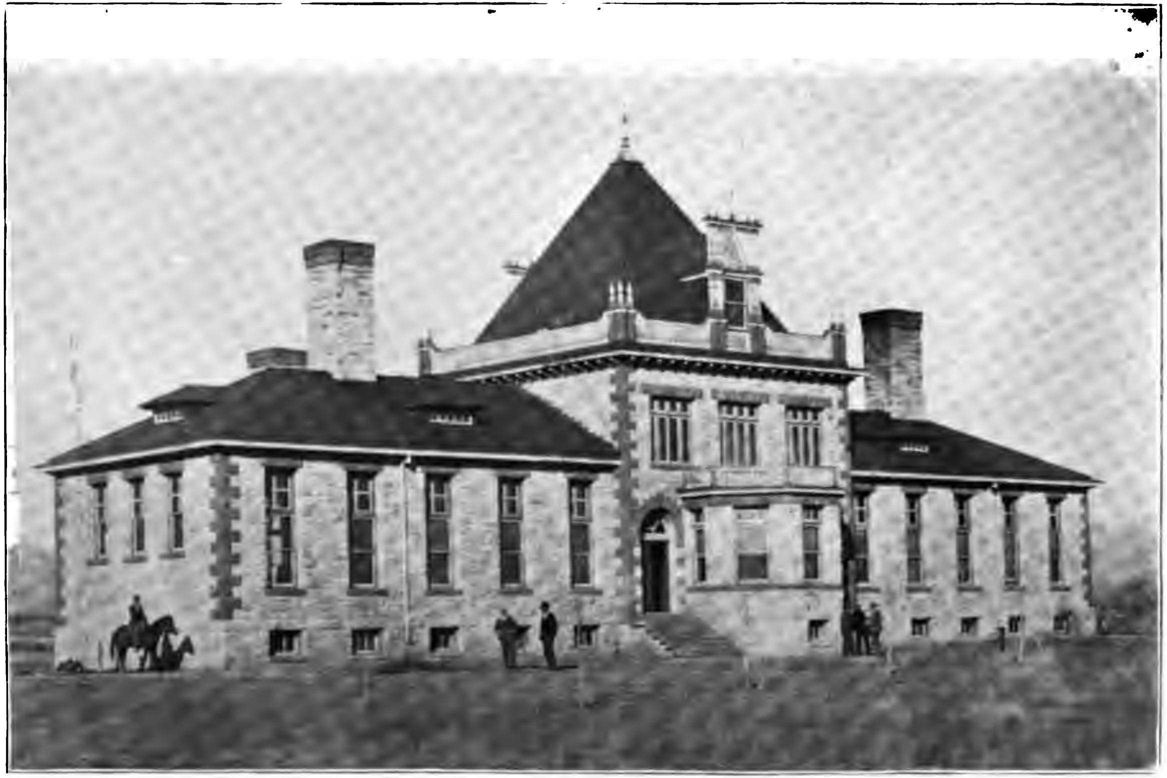
Three terms of three months each. Examinations and reports to guardians at end of each term.

The school is reached by the Pecos Valley and Northeastern Railway from Pecos on the Texas and Pacific Railway, or from Amarillo on the Fort Worth and Denver Railway, or by Star Route from Lincoln or Fort Sumner.

Session begins September 6, 1899, and ends May 31, 1900.

FACULTY.

Col. J. G. Meadors, superintendent, Washington and Lee University.
Maj. J. W. Willson, commandant cadets, Virginia Military Institute.



New Mexico School of Mines at Socorro.

Capt. W. S. Fitzgerald, Vanderbilt University.
Capt. L. Martini-Mancini, School of Arms, Italy.
Capt. W. E. Davis, Washington and Lee University.

COUNTY APPOINTEES.

The commissioners of each county in New Mexico appoint one cadet annually to the New Mexico Military Institute. Appointee receives board and tuition free. He must deposit on entrance a fee of $50 for laundry, medical attendance, breakage, and incidentals.

NECESSARY EXPENSES.

Tuition, board, lodging, laundry, and medical attendance, September to June, $200; uniform (blouse, trousers, and cap), $12.50 to $19; books and stationery, $6 to $10.

COURSE OF STUDY.

Preparatory classes.—Class A: Spelling, reading, geography, language lessons, arithmetic, writing.

Class B: English grammar, spelling, reading, arithmetic, geography, United States history; writing.

Class C: English grammar, reading, spelling, United States history, arithmetic, physical geography, writing.

Class D: English grammar, arithmetic, spelling, algebra, general history, physiology.

Collegiate classes.—Fourth class.—First term: Algebra, rhetoric, English history, Spanish, Latin, drawing.

Second term: Algebra, geometry, rhetoric, English history, Spanish, Latin, drawing.

Third term: Algebra, geometry, rhetoric, English history, Spanish, Latin, drawing.

Third class.—First term: Geometry, English literature, Spanish, Latin, drawing.

Second term: Geometry, English literature, Spanish, Latin, trigonometry, drawing.

Third term: Trigonometry, English literature, Spanish, Latin, surveying, drawing.

Second class.—First term: Analytical geometry, Spanish, German, Latin, physics, tactics.

Second term: Analytical geometry, Spanish, German, Latin, physics, tactics.

Third term: Analytical geometry, Spanish, German, Latin, physics, tactics.

First class.—First term: Calculus, astronomy, geology, chemistry, German.

Second term: Calculus, astronomy, geology, chemistry, German.

Third term: Calculus, Spanish history, geology, chemistry, German.

THE NEW MEXICO SCHOOL OF MINES.

The New Mexico School of Mines is a Territorial institution, founded by the Territorial legislature in 1889. The act creating it provides that the school of mines shall be supported by an annual tax of one-fifth of a mill on all taxable property within the Territory. This levy was increased by the Territorial legislature, in 1899, to twenty-seven and one-half hundredths of a mill.

The legislature located the school of mines at Socorro, the county seat of Socorro County. Its campus consists of 20 acres of level meadow land within the irrigable district, 1 mile west of the Rio Grande and 1 mile northwest of the railroad station. The laboratory building is situated nearly in the center of these grounds.

Socorro, a city of 4,000 inhabitants, is on the western slope of the Rio Grande and on the main line of the Atchison, Topeka and Santa Fe Railroad, about 75 miles south of Albuquerque and 179 miles north of El Paso, Tex. It is at an elevation of about 4,600 feet above sea, and, having a salubrious climate, is preeminently a pleasant and healthy location. Socorro is an attractive city for health seekers from the East who need a mild and dry climate, and every year many persons seek its hospitalities. In the city are two hotels, several good boarding houses, three large public-school buildings, and a court-house that cost $45,000. The church denominations represented here are the Baptist, Presbyterian, Episcopal, Methodist North, Methodist South, and Catholic.

Socorro has one of the best public water works in the Territory, furnishing a very soft, pure water. The supply comes from hot springs that issue from the base of the Socorro Mountains, about 4 miles west of this city. Two weekly papers are published here. There are also a brewery, artificial ice works, roller-process flouring mill, and a fire-clay plant, which manufactures brick, pottery, tiling, sewer pipes, crucibles, scorifiers, muffles, and almost everything requiring a fine grade of fire clay.

ADVANTAGES FOR STUDY.

The pure air and water, cool mornings and evenings, high elevation, and absolute freedom from malarial influences are some of the climatic conditions with which Socorro is favored and which are essential for thorough and systematic study. Living expenses here are as low as in any other city in the West. While some of the schools of mines in the East charge $200 or more per year for tuition, this institution only charges its students a nominal tuition fee for materials consumed.

The New Mexico School of Mines enjoys the natural advantages of being located in the midst of a region peculiarly rich in minerals of nearly all kinds, and is within reach of the most varied geological conditions, all of which are within a radius of 20 miles of Socorro. Almost the entire geological column, from the precious metal bearing formations of the Archæan to the coal beds of the Tertiary, is here exposed. The industrial processes connected with mining and metallurgy may be also seen at Timber Peak, Magdalena, Kelly, San Pedro, Hillsborough, Kingston, Lake Valley, Cooks Peak, Georgetown, Silver City, Pinos Altos, Los Cerrillos, Gallup, Carthage, and elsewhere within easy reach of the school. These illustrate the most modern methods of mining, milling, ore dressing, concentrating, smelting, lixiviation, chlorination, etc., as well as the native Mexican methods, which are worthy of careful study, since the like can not be seen elsewhere in the United States.

The grounds immediately adjacent to the school of mines include irrigable land, plateaus, and mountain formations, all affording an excellent field for practice in surveying, laying out of railroads and irrigating canals, topography, mine engineering, and geology, so that students can be prepared at the very doors of the school in these branches, which usually require tedious excursions from Eastern schools of mines.

The Territory of New Mexico, so far as concerns the mountainous portion, which comprises nearly two-thirds of its area, and is nearly all mineral bearing, is less known geologically than, perhaps, any other section of the United States—Alaska excepted. A slight study of the plateau region of the northwestern portion of the Territory has been made under a recent United States Geological Survey, but only in a general way. No attempt has ever been made under Government auspices to investigate closely the geological structure of the New Mexico Mountains such as has been carried out in the other Rocky Mountain States and Territories, or to study the conditions of New Mexican mineral deposits, as has been done in Colorado by Emmons, in Nevada by Curtis, in California by Becker, and in other States by distinguished investigators.

The field for original scientific research in New Mexico is unrivaled by any other mining section, and the opportunities here offered are not neglected in the plan and scope of instruction. It is proposed that much of the advanced professional work of the school shall be of an original nature, to the end that the graduates may be skilled theoretically and practically in the very problems which they, as professional men, will be called upon to solve. In connection with this work it is hoped to enlist every chemist, geologist, mining engineer, metallurgist, and other scientific investigators capable of observing and recording professional experience in the Territory. This work will be carried on by the advanced students, under the direction of the professors, and will involve the collection of notes, sketches, maps, and specimens, and the results of directed observation in all matters relating to the sciences and arts embraced in our courses of study. The results of these observations, together with illustrations and analysis, will be published from time to time in the scientific press and in special bulletins issued by the school. While this plan of instruction will furnish material for practical and original research on the part of the advanced students, it is believed that it will also be of great practical utility to the industries of the Territory, and that in an important sense the school will have for its students not only those who may study within its walls, but also the greater part of the educated mining population of the Territory.

The subjects for such research in geology, mining, and the reduction of the ores of lead, silver, gold, and copper are so numerous that it is impossible to attempt to do more here than to mention the fact that the conditions of climate, drainage, water supply, geological structure, etc., in New Mexico differ greatly from the conditions existing in other parts of the Rocky Mountains, giving rise to new problems in practice. But these problems are not by any means all that deserve attention. The investigation of the ores of iron, manganese, aluminum, cobalt, nickel, and tin, together with the beds of coal, saline salts, alums, building stones, mineral paints, cement rocks, fossil meals, etc., will be directly in the line of the advanced laboratory work of the school, and every student who undertakes such work will be encouraged in every possible way to accomplish the best results. During the senior year every candidate for graduation is required to make a thorough scientific investigation of some subject connected with his course of study and to embrace his results in a thesis.

COLLECTION OF MINERALS.

The school of mines now has a collection of several hundred specimens of minerals found in the Territory. It is desired to make the collection representative of the entire mineralogy of New Mexico. Specimens for the cabinet will be received and acknowledged with thanks.

COURSE IN SURVEYING.

This course is outlined for the purpose of giving the young men of the Territory an opportunity to gain a fair knowledge of plane surveying and leveling, and to fit themselves for the duties of county surveyors, should opportunity so offer.

The value of knowing how to run a line of levels for ditch work in an arid country by bringing water from a distance and properly distribute it over a large ranch is a matter of no little consequence, and much work in this direction lies in the near future. The knowledge

The law of 1887 provided that pupils not indigent should pay such amount as the committee should fix, and the Territory to pay for the indigent children. We can find no record or minute to show what was done with the money thus to be charged, nor what amount was collected, but Mr. Larson informs your board that something like $366 were by him collected from that source, and that said amount was retained by him under authority of the committee, as he claims, for board.

The present board was organized on the 10th day of April, 1899, the day fixed by the law of 1899, and elected Mrs. T. P. Gable as president and Benjamin M. Read secretary of the board.

We found the school was opened and was being conducted without funds, and at once ordered it closed on the last day of May, 1899, and to continue closed until the funds are available to pay off the debts incurred prior to our taking charge of the asylum, and to reopen as soon as we have money to conduct it on a cash basis.

We have ascertained, as near as we have been able to, from the official reports of the auditor of the Territory the exact financial condition of the institution, and find that, including the sum of $1,182.80 now due Mr. Larson, there has been paid out by the Territory the sum of $26,219.49 in purchasing land, building, and paying teachers' salaries from 1887 to May, 1899.

The real estate property of the asylum consists of one three-story brick building and a small addition, also of brick, and 4 or 5 acres of land. Only about from one-half to 1 acre of this land has been improved; it has a few fruit trees, and it lies immediately in front of the building.

The building and part of the land back of it cost (bought from Mr. Larson) the sum of $4,000, but the same was not completed at that time and the Territory had to expend a considerable amount to finish it. The small piece of land now improved was bought from Placida Sandoval for $75, making a total of $4,075, which is the amount paid for the real estate now owned by the asylum.

Of personal property, such as desks, maps, and all other school paraphernalia, dishes, beds, etc., the total value is about $500. In other words the asylum has in property, real and personal, the sum of $4,575. It also has a library of something like 250 volumes, but which did not cost the Territory a cent, the ladies of the board of trade of the city of Santa Fe having donated the same to the asylum some time ago.

Although our predecessors have constantly repaired the buildings, they are to-day far from meriting the name of a Territorial institution. The whole building needs repairs badly. In its present condition it is no credit to the Territory; poverty is apparent on every side.

We are at present hampered for want of funds as well as on account of the debt hanging over the institution, and see no prospect, as your excellency well knows, to open and to continue the good work of the asylum until next year, unless the money which is to be derived from the public lands shall come before that time.

Hoping to have satisfactorily complied with your request, and expecting your valuable aid in securing funds to put the asylum in repair and open the school soon, we remain,

Yours, very respectfully,

Mrs. T. P. Gable,
President.
Benjamin M. Read,
Secretary.

Hon. Miguel A. Otero,
Governor of New Mexico.

PRIVATE SCHOOLS.

SAN MIGUEL COLLEGE, SANTA FE.

This college, founded by the Christian Brothers in 1859, still holds its own as one of the leading institutions of learning in the Southwest. In the beginning the Brothers took quarters in rented buildings, but to-day they have their own buildings, which have cost nearly $50,000.

The college is unendowed and it has not received any share of the public funds. It has been self-supporting from its foundation.

One hundred and forty pupils have been enrolled during the present year.

The course of study consists of the English language, mathematics, commercial branches, phonography, typewriting, chemistry, assaying, and music.

The college has a well-stocked cabinet of minerals and a good chemical laboratory.

The Christian Brothers also conduct the La Salle Institute, at Las Vegas, with an attendance of 110 scholars, and a school in Bernalillo with 100 scholars.

ACADEMY OF LORETTO.

The Academy of Our Lady of Light was founded by the Sisters of Loretto in 1853. The first sisters started from the mother house in Kentucky June 26, 1852, and arrived in Santa Fe the following October, accompanying the late Archbishop (then Bishop) Lamy, who had gone to the States to procure teachers for his extensive diocese. They were four in number, with Mother Magdalen Hayden as superior. They were unable to open school until January 1, 1853, having to acquire the Spanish language. As soon as this was accomplished they commenced to teach in the house which Bishop Lamy had given them opposite the cathedral. Here they remained until 1855, when they moved to the present site, it being a much more desirable location. The lot on which stands "La Casa Americana," so called because it was the first house with a shingle roof in Santa Fe, was given to the Sisters by Bishop Lamy, who always had the welfare of the school at heart. Here good adobe houses were built and the school began a prosperous career. Its good name spread and soon the house was filled with boarders, fifty being the greatest number. The present academy was finished in 1881, and cost about $24,000. It is furnished with modern improvements, gas, water, steam, etc., and is noted for its bright, sunny, well ventilated school rooms. The course of study includes the elementary and higher branches of an English education. Phonography, typewriting, painting, music, plain and ornamental needlework, etc., are likewise taught. The number of boarders is not so great as in former years, on account of the branch houses of the order, which are scattered throughout the Territory. The academy was incorporated in 1874.

They also have a select day school in connection with the boarding school. The total attendance this year is 80.

The historical old adobe building formerly occupied by the Sisters of Loretto has been torn down and in its place a beautiful three-story brick building has been erected at an expense of about $10,000.

In the city of Santa Fe an excellent private school has for some years been carried on by Miss Gulliford and her family, who are all skilled in scholastic work.

Miss Gulliford is a certificated teacher from the School of Art at South Kensington, London, England, her sister (an assistant in Miss Gulliford's school), having graduated at the Royal College of Music and the Guildhall School of Music, thus insuring the most approved methods of vocal and instrumental instruction.

Special attention is given in this school to modern languages, particularly German and French, and students of the ordinary curriculum are already proficient in colloquial French when completing the school course. Geography is studied as a science, embracing a practical knowledge of the products of various countries, the chief ports of shipment, and the shortest and most convenient routes of commercial transportation. Great importance is attached to correct English grammar and composition, and to the minutiæ of detail, which build up perfection of scholarship. Music, drawing, painting, and deportment are all carefully studied, and pupils pass out of this school thoroughly equipped for professional or commercial pursuits, and fitted also to discharge and adorn the duties and demands of domestic life.

INDIAN SCHOOLS.

The Indian industrial schools at Santa Fe and Albuquerque, supplemented by the several Government schools at the various pueblos, are all doing fine work. Nearly every Indian child in New Mexico is provided with the means of education, and the schools are very largely attended.

For many years it was difficult to obtain the consent of the Indian parents for the education of their children at these public institutions, as they had much hesitancy in permitting their children to leave home and go under the control of teachers. All this is now changed, and the parents are taking the greatest interest in the schools, in many instances showing an anxiety to have their children educated.

From present appearances, the majority of the Indian children of the Territory will be well educated in a few years, just as the other youths of the Territory are. The work being done in these institutions is such as to greatly improve the conditions of these wards of the Republic, and it will soon place them in a position to be self-supporting.

ALBUQUERQUE INDIAN SCHOOL.

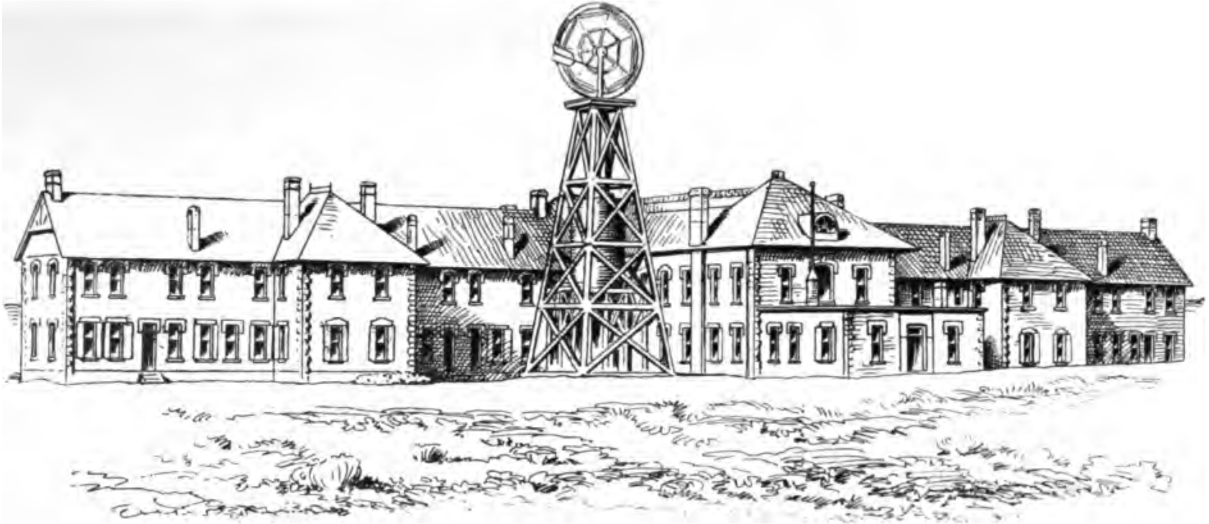
The total enrollment of this school was as good as last year, being 320, and the average attendance 301, which is as large a population as can be healthfully accommodated with the present plant. A number of improvements have been made within the past two years, among which may be mentioned a new ring bath system for the pupils, the installation of electric lights, a new steel tank tower, the further development of our wells, whereby an abundance of pure water is obtained in place of the very bad water that we have had heretofore.

The paramount need of the school for years has been a sewer system, and Congress at its last session appropriated $14,000 for that purpose. When this system is complete the sanitary condition will be changed from poor to excellent. The health of the school has been good, no deaths having occurred for more than two years. The pupils have made commendable progress both in the school room and in the industries. Among our employees who are doing good work are a shoemaker, harnessmaker, assistant seamstress, and assistant cook, who have learned their trades here alone, and other pupils are nearing a state of efficiency that will enable them to assume similar responsibilities. The industries taught are cooking, laundering, carpentery, harnessmaking, shoemaking, tailoring, farming, and simple work in blacksmithing. A manual training department has been lately added to the institution and it promises to be an important factor in Indian education, as it is in the public schools of the larger cities of the country.

It is believed the Indian problem is somewhat nearer a solution than it was a few years ago, and while it is difficult to measure accomplishment by years, the effect of the total work done is plainly discernible.

SANTA FE INDUSTRIAL SCHOOL.

This school is located about 2 miles south of the city of Santa Fe on the Albuquerque road. It was opened in October, 1890, with a capacity of 150 pupils, and was created as an Indian normal school in January, 1894.



GOVERNMENT INDIAN SCHOOL, SANTA FE.

The industries taught in this school are cooking, sewing, housekeeping, tailoring, shoemaking, blacksmithing, carpentering, laundering, and farming and gardening by irrigation. The farm consists of 160 acres, 10 acres consist of 5 acres of school campus and 5 acres of garden under irrigation.

The buildings are all of brick, well and substantially built, and lighted by electricity, and are named in order of size. Main school building in form of Greek cross; central building, 40 by 160 feet, two stories, each wing 40 by 140 feet, two stories. Employees' building, brick, two stories, with storeroom, kitchen, dining room, and fourteen employees' rooms, each with a large alcove; two bathrooms. Hospital, two stories, with ten rooms, dispensary, and bathrooms. Laundry, one story, three rooms and engine room, well equipped with steam washer, mangle, stationary tubs, centrifugal drier, etc. Shoe and tailor shop, two stories, four rooms. Tailor and 8 apprentices; shoemaker and 8 apprentices. Store, one story with basement. Blacksmith shop, one story, frame; capacity, 1 blacksmith and 6 apprentices. Carpenter shop, one story, frame; capacity, 1 carpenter and 6 apprentices. All necessary barns, sheds, hose house, oil room, hennery, etc.

Water supply, from the city waterworks, is abundant for all school needs and the irrigating of 10 acres. Sewerage ample and in good condition.

It is an acknowledged fact that the Pueblos and Navajos are among our most observant Indians. As a class they are the best reasoners among our Indian tribes. They are quick to detect shams and apt to see the good and bad qualities in men and things. They are more fully alive to the value of that which is good in white men's ways, and equally awake to the bad. They are more eager to adopt that part of our education in which they can see a commercial value than any Indian whom I ever met. They see almost instinctively the difference between a real mechanic and a pretense. They are willing to allow their children to remain a long time as apprentices, provided they can see that the instructor and appliances are of the best. And they do not seem to need any instruction to enable them to judge which is real and which is false.

In making my recommendations to the Indian Office I have had in mind the foregoing characteristics of the people with whom we must deal, and also the other, and perhaps more patent, fact, that our field is almost limitless. For instance, in the Santa Fe Agency alone are more than 1,000 Indian children of school age who have never been in a school of any kind. Among the Navajos (who are within our reach) are enough to fill three such schools as I ask for, and among the Utes within our reach are as many more. Besides this, our normal department extends to the entire Indian population of the United States, there being only three schools that make any pretense to a normal department, and these departments have just and equal claims upon all graduates of the various Indian schools.

In my recommendations I have asked that this school be raised in all departments to a real normal training trades school of a capacity of 600 pupils. I would not have the funds asked for expended slowly, but would that in a short time the school would be in full operation in all its branches, fully and generously equipped.

My estimates are made upon a very conservative basis, and to make the necessary improvements so as to put the school in working order with a population of 600 will require every dollar that I have asked for. Indeed, I have left not the slightest margin. I append herewith a recapitulation of my request:

For trades building	$15,000
For equipment of same	5,775
Addition to main building	2,600
Addition to warehouse	1,500
Addition to school building	6,600
New dormitory building	26,000
For heating plant	8,700
For water and sewerage	3,000
For repairs and improvements	3,000
Support of 300 pupils, at $167 per capita	50,100
Total	122,275

In the $15,000 "trades" building are to be taught the following branches: Blacksmithing, wagon making, painting, shoemaking, tailoring, tinning, plumbing, printing, sloyd, mechanical drawing, etc.

The equipment means two 80-horsepower boilers (to be used for steam heating and power), one 50-horsepower engine, and the necessary shafting and pulleys.

The "addition to the main building" is for modern bathrooms and water-closets; the "addition to school building" means four additional schoolrooms to the building now under construction; the "dormitory" explains itself; the "heating plant" is for piping and radiators within the buildings, and for the pipes from the boilers to the buildings. It is perhaps in order to call your attention to the fact that this school is already a regular normal school, having quite a class of young men and women from several different tribes, graduates of various Indian schools, who are preparing themselves for teachers in the service.

United States Indian Industrial School.

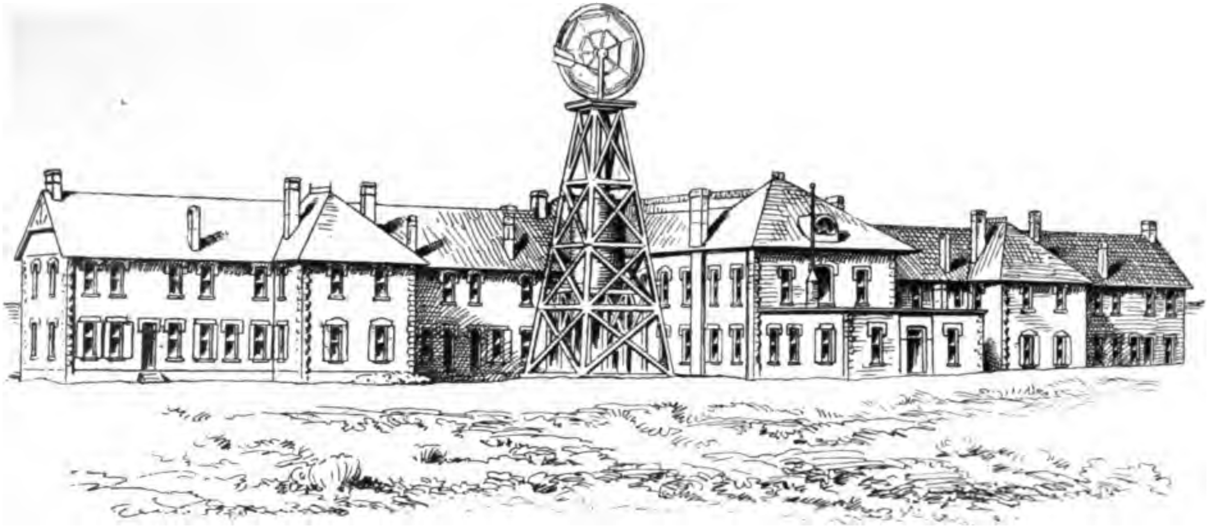
Number of schools	1
Number of months taught	12
Number of instructors	32
Enrollment	296
Total daily average	285
Total receipts	$50,050
Total expenditures	$50,050
Total value school property	$49,904
Total amount of salary paid to instructors	$17,680

COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

Origin.—The New Mexico College of Agriculture and Mechanic Arts, under a slightly different name, was established by the twenty-eighth legislative assembly of the Territory of New Mexico, by act approved February 28, 1889.

The purpose of this institution is clearly defined in section 19 of this act: "The agricultural college created and established by this act shall be nonsectarian in character and devoted to practical instruction in agriculture, mechanic arts, natural sciences connected therewith, as well as a thorough course of instruction in all branches of learning bearing upon agriculture and other industrial pursuits."

The branches in which instruction may be given are set forth as follows in section 20 of the same act: "The course of instruction of the college hereby created shall embrace the English language, literature, mathematics, philosophy, civil engineering, chemistry, animal and vegetable anatomy and physiology, the veterinary art, entomology, geology, political and rural household economy, horticulture, moral



GOVERNMENT INDIAN SCHOOL, SANTA FE.

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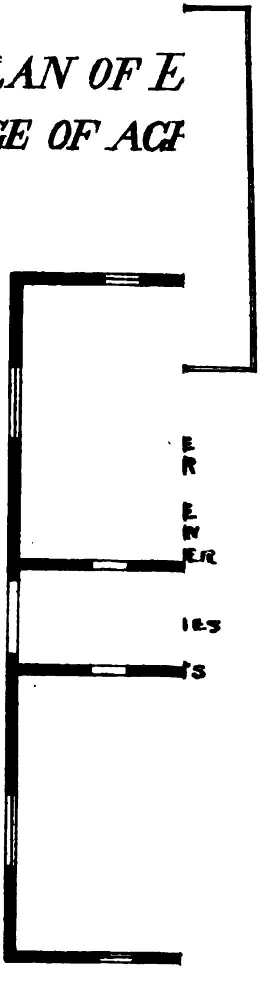

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philosophy, history, mechanics, and other sciences and courses of instruction as shall be prescribed by the regents of this institution of learning."

By section 25 of the same act the assent of the legislative assembly was given to the establishment of experiment stations within the Territory of New Mexico in connection with the agricultural college, in pursuance of the act of Congress approved March 2, 1887, known as the Hatch Act.

Income.—The revenues of this college are derived from the following sources: (1) Students' fees. (2) Sale of college farm products. (3) Territorial tax and special appropriation. (4) The United States under Congressional act of March 2, 1887, the Hatch fund. (5) The United States under Congressional act of August 30, 1890, the Morrill fund.

The money received from students and from the sale of products from the college farm has, so far, been very limited in amount, and has been used principally for paying expenses not provided for by either of the acts of Congress.

From the beginning the college has steadily grown in the number of students in attendance and in the confidence of the people, until last year there was a total enrollment of 215 pupils.

Four general courses are offered, namely, agricultural, mechanical engineering, civil engineering, and scientific, each of these being four years in length, leading up to the degree of bachelor of science. Besides these, there are shorter courses in bookkeeping and stenography and typewriting.

The laboratories are unusually well equipped, and are being added to continually. During the past year an electric dynamo and motor have been put in. Several additions have been made to the equipment in the chemical department, and the apparatus in the biological department has also been added to. A new building, called a station building, has been completed, and in it are located the chemical laboratories and lecture rooms, biological laboratory and lecture rooms for teaching anatomy and physiology, botanical laboratory rooms for the entomological department and the bookkeeping department. The building is an ornament to the place, and fills a long-felt need. A girls' dormitory was also completed during the year, and is now completely furnished and in use.

Many valuable experiments have been and are being carried on in the experiment station. Those relating to the cultivation and care of sugar beets have been especially satisfactory, and large numbers of farmers in different sections of the Territory have cooperated in this work, with the result that it has been practically demonstrated that New Mexico can grow as fine sugar beets, running as high in sugar content, as are grown anywhere in the world. The college invites the patronage and confidence of the people of New Mexico because of its large corps of efficient teachers, its well-equipped laboratories, its unsurpassed location, and the genial climate of the section in which it is built, which makes it the finest college of its kind in the entire Southwest.

DEPARTMENT OF ENGINEERING.

In the engineering course instruction is given by lectures, recitations, and practice work, so combined as to constitute a symmetrical course of study. The endeavor is to provide the student with a broad foundation of general and theoretical knowledge, together with a liberal amount of practice in the line of his chosen profession.

After taking the elementary drawing and the bench work in wood, which are given by the department to all college students, those who elect engineering continue on advanced work in these subjects, and, in addition to the general studies in mathematics, physics, chemistry, English, language, Spanish, political economy, history and literature, their course includes descriptive geometry, theoretical and applied mechanics, hydraulics, engineering structures, metallurgy, electrical engineering, strength of materials, mechanism, machine design, steam engine and shop practice in carpentry, wood turning, blacksmithing and machine work, and a thesis for graduation. While the shop practice develops considerable ability in the student as a craftsman, yet, the educational features of this work are the most valuable and are constantly emphasized.

The laboratory is used to give the student an opportunity to put into practice the principles taught in the class and drafting room. An example of this method of teaching in all colleges of agriculture and mechanic arts may serve to explain the great difference between these colleges and those organized for literary and normal work.

After taking enough elementary free-hand and mechanical drawing to enable him to interpret such work, the student makes a correct drawing of some mechanical device, the drawing including the making of a tracing and blue print. He next goes into the wood room and constructs a pattern after the dimensions given in the drawing. Next in turn the pattern is molded in the foundry, and the casting is finished and the parts assembled in the machine room. At the same time, with this practice work, the student receives from text-books and lectures a thorough drill in mathematics, and their application in problems in hydraulics, roof and bridges, strength of materials, the generation and transmission of electric energy, specifications, etc.

The equipment of the engineering department consists of two buildings arranged for the work. One of these contains two large and well-lighted recitation rooms, a hall, a boiler room, machine room, and woodworking room. The second building contains room for forge and foundry work.

The motive power consists of a 40-horsepower steam plant and a 15-horsepower oil engine. The machinery is all of modern and improved design. It is expected that additions will be made to this equipment each year, as is done in all agricultural and mechanical colleges, and that the department will thus be enabled to offer to the student the most valuable preparation possible for his profession. The citizens of the Territory should give this engineering-laboratory feature their most substantial support, for the plant is a permanent one, growing more and more valuable each year, and giving additional educational training of increasing value to students in proportion to the extensiveness of the equipments. Gifts of machinery, drawings, photos of engineering work, or loans of these things to the engineering laboratory, will be of great value to the students, and will be appreciated by them.

An excellent department library, containing standard and special works on the subject pertaining to the engineering professions, is accessible to the students.

DEPARTMENT OF AGRICULTURE AND HORTICULTURE.

The work of this department is of a dual character, the more important work being, perhaps, the experiments conducted with a view to solving agricultural problems as presented in all parts of the State, though the work of instruction in agriculture and horticulture is of equal value, but more confined in its results. The principal lines of experiments now being worked upon are—

1. The testing of such varieties of grasses and forage plants as can be secured, that give promise of success in the dry, hot climate of New Mexico. While we have an extensive range in this Territory, there is a great lack of suitable pasturage for stock on the ranges and ranches. A summer pasture for cattle is especially needed. Annual grasses, such as the millets, nonsaccharine sorghums, Kaffir and Jerusalem corn, and several varieties of perennial grasses are now under trial. As far as possible, preliminary experiments in the feeding of these crops are being made, but such work can not be satisfactorily done until the college owns its own live stock.

2. Experiments in soil tillage and water management are receiving much attention. In this work the department of soil physics cooperates. The problem to be solved has many phases, and is one of the most important in New Mexico agriculture. It involves the measurement of all water applied to the land, the determination of the moisture content of the soil, the influence of tillage on soil moisture, and kindred subjects. The ultimate object is to determine the least amount of irrigation necessary to secure the highest crop returns. Investigations of this character are cumulative in value, and must necessarily be prolonged over a series

of years. Hay, grain, and orchard crops are being employed in this study, and already interesting and valuable data have been secured. The principal indication noted in the study of an irrigated corn crop is that a deep, loose soil—a condition secured by subsoiling to a depth of 15 to 18 inches—permits the absorption of much more water at each irrigation than is possible in shallow-tilled land, and insures a much more vigorous growth, and, consequently, a better crop.

3. Orchard studies: In the experiment orchard of the college there has been continued this year an experiment begun last year for the destruction of the codling moth. All of the fruit in the orchard was destroyed while very young last year to see if the absence of a food supply would result in the destruction of the pest. During the present season the trees were banded just after the fall of the bloom, and weekly examinations have been made for moths. Compared with other orchards in which the fruit was not destroyed, the college orchard is remarkably free from the codling moth, though not entirely exempt. An experiment in the pruning of the peach is also under way, and studies of the fruiting season, yield, etc., of many varieties of orchard fruits are being made.

4. Feeding experiments with cattle and sheep are planned, and it is hoped may be begun next year. Preliminary to this, an effort has been made this season, both at the college and the substations, to increase the list of possible crops that can be used in stock feeding in New Mexico. It is believed that with alfalfa as a basis a sufficiently varied diet can be provided to yield best results, while the mild climate should aid in making the winter feeding of range stock a profitable industry for the valley ranchmen.

On a smaller scale, experiments and observations with garden crops, ornamental plants, and forest-tree plantations are being conducted. During the year a weekly press bulletin has been sent to the newspapers of the State, and has been very largely used by them. The subjects discussed have been timely and practical, and the bulletin has resulted in an enlarged correspondence for the department coming under this heading, thus proving the interest of the public in the work.

The substations at Roswell, Las Vegas, and Aztec, supported by Territorial appropriations, are designed to aid the home station by undertaking problems of a more local nature. Late in the season they were placed in the care of this department, and while a lack of time prevented the planning of entirely satisfactory work for the present season, it is believed that these substations can be made a source of great value to the communities in which they are located. The great question of the increase of alkali by seepage water will be studied at the Pecos Valley station, and the Aztec station will be largely devoted to experiments with fruit during the immediate future.

The equipment of the department has been materially increased during the year and the prospects for its increased usefulness are bright.

DEPARTMENT OF POLITICAL AND ECONOMIC SCIENCE.

Political economy.—During the year 1899-1900 one course will be given on this subject—an exposition of the general principles of economics. Davenport's Outlines of Economic Theory will be the handbook used, and the subject will be developed in the main by means of assigned readings and oral discussions. Collateral reading on special topics will be assigned to the several members of the class, upon which they will be required to report.

Political science.—Two courses in political science will be given in which the same general method will be followed as in the course in political economy—assigned readings, recitations, and discussions, oral and written, by the class as a whole; and collateral reading, oral and written reports upon special topics, by the members, severally. In the first course—a comparative study of the development of government—Woodrow Wilson's The State will be used as a text-book. In the second course, constitutional law in the United States, Cooley's General Principles of Constitutional Law will probably be retained as a guide book.

DEPARTMENT OF ELOCUTION AND PHYSICAL CULTURE.

Four years ago the department of elocution and physical culture was introduced into the college. Since that time systematic instruction has been given in tone and voice work, articulation, emphasis, inflection, and gesture. All college students are required to take the work, and public recitations by the various students in each class are given yearly.

The class in physical culture, which comprises all of the young ladies of the college, meets every morning at recess in the McFie Hall. Visitors have found it a pleasing sight to watch the fifty or sixty young ladies keeping time to the music as they go through the graceful movements of the Delsarte drill or the varied changes of the wand and dumb-bell exercises. Instruction is also given in free gymnastics and the Swedish system. Several pleasing entertainments have been given under the direction of the instructor in charge of this department.

DEPARTMENT OF BOTANY, IN CHARGE OF GEOLOGY AND PHYSICS.

College work.—This department has under its charge the work in botany, geology, and physics. The work in each subject occupies the whole year of time, botany having the equivalent of six hours and the others five hours each week,

The method of teaching these subjects pursued is as much the laboratory method as facilities will permit, and it is possible to follow this method almost entirely in the subject of botany.

Students in this subject are supplied with good compound microscopes and all the other necessaries for making a careful microscopic examination of different kinds of vegetable structures. Besides the laboratory work a text-book is used as a guide, and both are supplemented by lectures.

The work in physics consists of lectures with assigned text-book reading and demonstration experiments performed by the teacher and assistant in class. Strictly laboratory physical measurements, except of the simplest kinds, are not possible for want of the necessary apparatus, but it is expected that much of this will be added in the near future.

The work in geology comprises a term in mineralogy and lithology, a term in dynamical and structural geology, and one in historical geology and paleontology. A rather large assortment of minerals is placed in the hands of the students for study and some work in determinative mineralogy is attempted. A small collection of fossils is used in the work in paleontology.

The department has excellent quarters for botanical work in the new science hall, and the work in geology is temporarily placed in one of these rooms until it shall be possible to arrange suitable accommodations for a museum. The physical laboratory, in the engineering building, furnishes good accommodations for this work and will be much better when it is thoroughly equipped for students' laboratory work.

Experiment-station work.—On account of the large amount of teaching in charge of this department not a very great deal of experimental work has been done the past year. A study of the flora is being carried on with the ultimate purpose of publication of a manual of the flora of the Territory, and to this end plants are being collected at all times and preserved in the college herbarium. This herbarium is now of some size and is fairly representative of the flora of the Territory, besides containing some other plants received from different parts of the United States. Some studies of the distribution of plants have been made with the design of making a life-zone map of the Territory.

The summer of 1899 has been spent in the field in the Sacramento Mountains, making collections of plants in localities never before visited by a botanist. The season's trip has yielded between 3,000 and 4,000 specimens of dried plants, of which it is believed that several are new.

The head of this department is particularly anxious to become acquainted with the various investigators in the botanical field of this Territory and offers his services for the identification of plants and the answering of general questions relative to this subject.

DIVISION OF SOIL AND IRRIGATION INVESTIGATION.

This department is cooperating with the Division of Soils and of Irrigation Investigations of the United States Department of Agriculture. The following lines of work are now under way:

First. Measuring the amount of water applied to the experiment-station orchard and to 30 acres of alfalfa near Las Cruces.

Second. A piece of ground on the experimental station farm of about 4 acres was divided into twelve plats and these planted to corn, which has been subjected to different amounts of cultivation. Three of the plats were subsoiled. The soil of each plat has been carefully examined as to its physical characters. In each of these plats were installed two sets of electrodes for determining the amount of moisture in the soil by the electrical method—one at 6 to 9 inches, the other at 21 to 24 inches. Soon after the corn was planted it became impossible to irrigate these plats, and we have therefore gotten some interesting figures on the per cent of moisture in the soil during drought and of the effects of definite quantities of rainfall on soil moisture. We have also learned something of the effect of dust mulch on conserving the soil moisture.

The work for this season will not yield results that can be considered at all conclusive; in fact, the experiments will have to be repeated through a number of years. We hope finally to be able to state with some accuracy the per cent of moisture necessary for the growth of crops and the number of acre-feet of water required to give that necessary moisture.

A month during the summer of 1899 was spent with Messrs. Means and Gardner, of the Division of Soils of the United States Department of Agriculture, in the vicinity of Roswell, studying the soils, alkali, and seepage water. We found the lowland soils there getting into very bad shape from the use of too much water and the leakage from the ditches. The water table had been raised much too near the surface of the soil, and this had caused the accumulation of "alkali" in the surface of the soil to such an extent as to be quite injurious to plant growth. We were able to suggest a remedy for the conditions, which bids fair to relieve the trouble. The lands will have to be thoroughly drained and then flooded during the winter months, and the water will have to be applied judiciously to the growing crops.

Determinations of soil moisture are also being made at the Las Vegas and San Juan substations. We hope that the experience gained this season will enable us to carry out the experiments along these lines on a much larger scale next season. It is exceedingly important that we should know how many acre-feet of water are needed for the different types of soils and different localities of the Territory in order to use economically any water supply that may be made available. It is also very important that we know the characters of the soils of the Territory in order that we may guard against subirrigation and the "alkali" which usually accompanies it.

There are certain localities where irrigation will never be a success without drainage, while in others there seems to be very little need to fear subirrigation, at least so long as irrigation is confined to the lowlands. It is possible that, in all cases where large quantities of water are applied on the mesa lands, there is danger of subirrigating the lowlands.

DEPARTMENT OF SPANISH.

Spanish is optional with Latin in all the courses throughout the freshman and sophomore years; and in the junior year in the scientific course it is optional with higher mathematics and English literature.

Situated, as this college is, near the border of the Republic of Mexico, with Spanish in common use among the majority of our people, the greater number of pupils prefer Spanish to Latin.

For the year ending June 2, 1899, the number of students that studied Spanish was 44; and it is with pleasure that I am able to state that they took an unusual interest in the work.

There exists a strong and growing demand for Spanish-speaking stenographers, and the calls upon this college for competent Spanish and English stenographers during the past year have far exceeded the supply. The work in Spanish is of such a character as to fit the student for commercial work, and a considerable amount of Spanish dictation is given.

In connection with my four Spanish classes I had charge of a class of Spanish-speaking pupils to whom I taught English.

SCHOOL OF STENOGRAPHY AND TYPEWRITING.

In this department provision is made for the thorough and complete training of stenographers and typewriters. The course provided is one year in length, and it is such as to give the student thorough and complete work in those branches best fitted for his needs. The department is well equipped with Remington and Smith Premier typewriters and other facilities, and the training is thorough in every respect.

A special feature of this department, and one which is unique among educational institutions of the country, is the provision made for the training of stenographers in both English and Spanish. This particular feature of the course has been given some attention for several years. The demands made upon this department for competent stenographers in both Spanish and English have been much greater than it has been possible to supply. It is a creditable record for the department that of the many young men and young women who have left this work during the past five years to take active positions not one has been found unable to meet all the requirements expected of him.

DEPARTMENT OF MATHEMATICS AND ASTRONOMY.

Changes in the courses of studies have been made in the various departments of instruction nearly every year in the history of the college. While changes do not always signify growth, still the courses of study have been greatly improved and strengthened. This department will no doubt be greatly benefited by two important changes this year, the raising of the requirements for admission to the freshman class and the lengthening of the recitation period from forty-five minutes to one hour for all college classes. Algebra through logarithms is the mathematical requirement for admission to the freshman class this year, while for several years past the subject had to be completed through quadratics only. More time also is allotted to the above amount of work than has been given heretofore.

All freshmen pursue the study of plane and solid geometry daily during the first and second terms, and four days each week during the third term. Before Book I is completed students have practice in solving "original" propositions; and this work is continued throughout the year, requiring at least one-third of the time that is devoted to the study of geometry. The students take pleasure in demonstrating original theorems and in solving original problems, for this is a test of their mastery of the subject.

Trigonometry is taught daily during the first term of the sophomore year. While the greater portion of the time is devoted to the study of plane trigonometry, still the student is able to get a fairly good knowledge of spherical trigonometry.

Higher algebra is taught one hour per week in the third term of the freshman year, and two hours per week in the third term of the sophomore year.

Analytic geometry is taught three hours per week in the third term of the sophomore year, and four hours per week in the first term of the junior year. The work covers not only plane analytic geometry, but also a considerable amount of geometry of three dimensions.

Calculus is taught daily during the second and third terms of the junior year.

All engineering students are required to complete the mathematics as outlined above. All scientific and agricultural students are required to complete the mathematics as far as the end of the second term of the sophomore year. The scientific students may then continue the work as an elective if they desire to do so.

Astronomy is taught five hours per week in the first term of the senior year, four hours per week in the second term, and one hour per week in the third term. This is a required study for all seniors except those in the mechanical engineering course. The class meets for night observations at least once every two weeks throughout the year.

This department has for the use of students a portable equatorial telescope with 4½-inch objective and magnifying powers ranging from 100 to 400, a surveyor's transit with solar attachment, star lantern with slides, planisphere, star atlas, field glasses, and a 24-inch slated globe.

DEPARTMENT OF HISTORY AND PEDAGOGY.

The purposes aimed at in teaching history are (1) to give an idea of the great lines of historical development, (2) to discover the ideas which organize historical movements, (3) to stimulate self-directed investigation, (4) to train the judgment in the discrimination of motives and the results of action, and (5) to inspire the student with a desire to be something more and better than a passive observer in the progress of humanity.

The work embraces the following:

General history.—This subject, although required for admission to the freshman class, is taught by the professor of history. It is pursued through the subfreshman year four hours per week. In the limited time allotted, constant effort is made (1) to give the student a large number of important individual facts or events, great care being taken not to burden the memory with unimportant ones; (2) from these to group as many related ones as possible, and thus to connect causes and results of leading historic movements.

History of education.—During the third term of the sophomore year students in the course in pedagogy pursue this subject five hours per week. From a new point of view, this affords a valuable review of many topics passed over in general history, and it is also a fitting introduction to the work in pedagogy, of which it forms a part.

History of civilization.—During the last term of the senior year, five hours per week, students in the course in agriculture, and those of the scientific course who have not elected pedagogy, will pursue this subject.

Pedaggoy.—It is not the intention of the board of regents and the faculty to give this subject great prominence at present. But experience has shown that many of the students of this college engage in teaching to a greater or less extent. It is believed that it is due to these and to the common schools of the Territory, that opportunity should be afforded for obtaining an introduction to the theory and the practice of teaching. To this end, the following elective and substitute work is offered to students of the scientific course.

Elementary psychology.—During the first term of the junior year five hours per week will be devoted to this subject. Disregarding the many fine discriminations properly pertaining to more advanced work, an attempt will be made to make the student familiar with such a popular understanding of mental phenomena as is essential to a study of pedagogy as a science. On the physiological side he will have had ample training in the zoological laboratories.

Arithmetic.—During the third term of the sophomore year, four hours per week, this subject will be thoroughly reviewed from the standpoint of a teacher. Students will not only become very familiar with the subject-matter, but every recitation will be so conducted as to illustrate philosophical method. Students will also be given practice in conducting recitations in this subject.

Language and geography.—During the second term of the junior year five hours per week, in connection with the reading of essential portions of McMury's Method of the Recitation, students will have a training in these subjects, or portions of them, similar to that outlined for arithmetic above.

School management, school law, and practice teaching.—During the third term of the junior year, five hours per week, the time will be divided among these topics in such proportion and in such manner as best judgment may dictate at the time.

General remark.—This course is not intended as a rival to courses given in professional normal schools. So much is introduced to meet partially a pressing demand. Yet, when we take into account the liberal amount of academic training contained in it, especially the scientific training gained through the use of ample equipment in the way of laboratories of various kinds, it is believed that the graduate may enter upon the work of teaching with a reasonable degree of assurance of success.

DEPARTMENT OF ENGLISH AND LATIN.

English.—English is taught throughout the entire collegiate course. The work consists chiefly of theme writing, supplemented by some rhetorical analysis and a careful study of a few English classics. All college students write at least one composition a week.

In the junior year an elective course in English literature is offered. The works read during the current year are two of Shakespeare's plays, Homer's Iliad and Odyssey in a translated form, and Tennyson's Idylls of the King.

Latin.—Latin is taught as an elective during the freshman and sophomore years. Special attention is given to the points of relation, etymological and grammatical, between the English language and the Latin; also to questions of classical mythology and Roman history.

Equipment.—In the department library will be found Smith's Dictionary of Classical Antiquities and Dictionary of Greek and Roman Mythology and Biography, the English dictionaries of Webster and Worcester, and several other books of reference of value to the language student.

DEPARTMENT OF CHEMISTRY.

The work of the chemical department, like that of several other departments of the institution, is divided into two parts—one relating to the instruction of students, and the other to the agricultural experiment station connected with the institution.

The chemical department has been making a steady growth during the short time the college has been in existence. Starting in very poorly arranged and cramped quarters, since moving into the new science building not only the room but the equipment as well has been very materially increased. The equipment of the chemical department is modern and first-class in every particular, and will compare favorably with that of many older institutions. It is not at all necessary for students to leave the Territory to find first-class facilities for instruction in chemistry.

The courses in chemistry and assaying given to students are intended not only as cultural studies of the general college course, but are designed to have a practical application as well. While the institution is comparatively young as yet, it is nevertheless a fact that a number of young men who have taken work in the chemical department are at present holding responsible positions in connection with mining work in Mexico and elsewhere.

In the chemical laboratory of the experiment station a number of investigations have been carried on that are thought to be of practical value to the Territory. For example, for the past two seasons a study has been made of a number of sections of the Territory in regard to their adaptability to sugar-beet production. As a result of this work, it has been demonstrated that a number of places in the Territory, especially in the northern portion, can produce remarkably high-grade beets, both as to sugar content and purity. A number of people in the Territory have been very much interested in this work, and attempts are being made, in one or two instances with apparently a fair degree of success, to interest capital in the matter and secure the erection of additional sugar factories in the Territory. The principal results that we have secured in the sugar-beet work are to be found in bulletins 26 and 29, which, as well as other bulletins of the station, may be had free upon application.

Bulletins have also been published from this department concerning "The Value of Rio Grande Water for the Purpose of Irrigation," "Alkali in the Rio Grande and Animas Valleys," and "Principles of Stock Feeding and Some New Mexico Feeding Stuffs."

In 1895–1897 investigations were carried on in cooperation with the United States Department of Agriculture, Office of Experiment Stations, concerning the food of our native people, and the composition of our native range cattle. The results of these investigations were published as Bulletins No. 40 and 54 of the United States Department of Agriculture, Office of Experiment Stations. We are also at present cooperating with the Department in the irrigation investigation work, in a study of the composition of the Rio Grande and Pecos river waters.

Besides the above a considerable amount of original research work has been done in this department on methods of analysis of soils, feeding stuffs, etc. Several of these methods have been adopted as official methods by the Association of Official Agricultural Chemists.

DEPARTMENT OF ENTOMOLOGY.

The principal subject studied in the entomological department for some years has been Coccidæ, or the family of scale insects. These insects, though mostly minute and inconspicuous, are very destructive to fruit trees and ornamental plants, and it has become necessary for economic entomologists to give them serious attention. Inasmuch as different kinds are being continually introduced into the United States from abroad, we have had to include in our studies the Coccidæ of the whole world, so far as material could be obtained. The collection of these insects in the college is the most complete in the United States, with the exception of the national collection at Washington, and in it are included the type specimens of a great many new species.

The entomologist has also been much occupied with an investigation of the geographical distribution of the different insects throughout the Territory, with a view to the elucidation of the life zones. It has become apparent in the course of these studies that the life zones of New Mexico are far from being well understood, and while a large mass of data has been accumulated, the work accomplished is small in comparison with that which remains to be done. During the year 1898–99 Prof. C. H. T. Townsend was in charge of this work, and he obtained a large and valuable collection in the Sierra Blanca region, which still awaits study.

The codling moth, so destructive to the apple crop, has been carefully studied, with the result of showing the extreme difficulty by any ordinary means of preventing its ravages. It has several generations during the year in the Mesilla Valley, and thus is able to increase to such an extent that neither spraying nor banding seems to protect the late apples.

The wild bees of New Mexico have been studied for a number of years, and tables for their determination have lately been published. In teaching entomology it was found that there existed no manual or any group of New Mexico insects that could be used by the students, and so it was planned to work up the bees with such a manual in view. The subject proved more interesting and complicated than was expected: several of the genera, and great numbers of the species—over 100 in the Mesilla Valley alone—being undescribed. It has resulted from these and other investigations that the entomologist has published a large number of papers on the natural history of New Mexico, besides the bulletins of the Experiment Station, treating principally of life zones and the codling moth. Papers have appeared in the proceedings of the Philadelphia Academy of Sciences, transactions of the American Entomological Society, bulletins of the scientific laboratories of Denison University, bulletin of the Illinois State Laboratory of Natural History, transactions of the Kansas Academy of Science, Annals and

Magazine of Natural History, American Naturalist, Canadian Entomologist, Entomological News, Psyche Botanical Gazette, etc.

The undergraduate classes in entomology in the college have always been small, and from the nature of the conditions, particularly the lack of time, somewhat unsatisfactory. Better work has been done by senior students preparing theses, taking special subjects, such as the bees of New Mexico, the life of the sand hills, the codling moth, the dacylopinæ, etc. Considerable time has also been given to assisting original research, but with one exception the students have been residents outside of New Mexico, and it has been necessary to correspond through the mails. It is expected in the future that more research students will find their way to the college, and it is hoped that their presence, while not increasing the expenditure to any noticeable extent, will prove beneficial to the institution. During the summer of 1899 the entomologist has conducted the New Mexico biological station at Las Vegas, in cooperation with the normal university, but this station is not at present officially connected with the college.

NEW MEXICO NORMAL UNIVERSITY.

By an act of the Territorial legislature of 1893, the New Mexico Normal School at Las Vegas was created. The proceeds of the special tax levied at that time for the erection of a building, with the addition of $10,000 appropriated by the legislature in 1895, and the sum of $19,700 advanced by the citizens of Las Vegas in 1898, were applied to the erection and equipment of the beautiful brown sandstone building now occupied by the school.

Building.—This building is of the Romanesque style of architecture and is a genuine work of art. It is situated on an eminence in the center of the city of Las Vegas, easy of access from all directions, and surrounded by perfect sanitary conditions. It is heated by steam, perfectly lighted and ventilated, furnished with electric lights, and supplied with mountain water from the Agua Pura Waterworks. The total cost of the building will be about $50,000. It is unquestionably the finest public building in New Mexico and perfectly adapted to the purposes for which it was designed.

Location.—The city of Las Vegas has a population of about 10,000. It is the leading commercial center of New Mexico. It is a thriving business place, situated at the eastern base of the Rocky Mountains, at an elevation of 6,398 feet. The foothills rise from the western side of the city. Only 6 miles away are the famous Las Vegas Hot Springs, and an hour's drive brings one into some of the most beautiful of mountain canyons.

Of all the school and residence towns of the Rocky Mountain region Las Vegas undoubtedly affords the most favorable conditions. As a place for study all the year around it could not be excelled. The winters are mild and pleasant, zero days and cloudy days being rare. The summers are almost perfect. The nights are always cool and the heat of the day rarely touches 90 degrees.

Las Vegas is on the main line of the Atchison, Topeka and Santa Fe Railroad. It is twelve hours by rail from Denver, fifteen hours from El Paso, thirty-nine hours from Chicago, and forty-two hours from Los Angeles. The best of train service makes it easy of access from all directions.

Museum.—Ample room has been set aside for this purpose and every friend of the school is earnestly requested to contribute to this department. New Mexico is rich in geological, botanical, and zoological material, as are all of the Rocky Mountain States; but in the first line of prehistoric interest it stands alone, the richest field on the continent. Large collections are annually leaving the Territory to be placed in Eastern institutions. If centered in New Mexico, these would soon make one of the finest museums of anthropology in existence. The museum of ornithology already comprises 500 specimens.

Sessions.—The institution never closes. It is felt by the management that after the State has invested large sums of money in a public institution it should not be closed and yielding no return during any part of the year. Accordingly, continuous sessions are held and students may at all times find profitable courses in instruction in progress.

Moral and spiritual influence.—The school is absolutely free from denominational or sectarian influence. The school accepts the almost universal theory that the chief end of all education is moral character. Accordingly, the character-building aim is kept continually in view.

A high moral sense and a spiritual nature that is fully developed are essential to the teacher to inspire youth to attain higher and nobler lives.

Government.—All government exists for the good of the governed. This conception of government is put into execution in the school. The aim is to develop in pupils the power of self-control, through which the individual comes into perfect obedience to the laws of man and God. The idea is to render discipline unnecessary.

A monthly publication, called the Southwest, devoted to the educational interests of New Mexico and edited by the students of this institution, has already taken a worthy place in school journalism.

Expenses.—Board in private families, $20 to $25 per month. Self-boarding has been conducted by a number of students during the past year at $10 per month.

Fees are as follows: Normal school, $5 for a term of three months; graduate school, $5 for a term of three months; academic school, $5 for a term of three months; manual training school, $5 for a term of three months; commercial school, $15 for a term of three months.

Literary societies.—Two literary societies are in operation, the Delphian, for young women, and the Olympian, for young men. All students are expected to do literary work throughout the course. The reading, elocutionary, oratorical, and dramatic work will all be prepared under the direction and training of a critic. Joint open meetings are given each term, and an annual contest will be held. To cultivate the power of the voice and attain ease and power in public speaking are the aims of the literary societies.

Gymnasium.—Systematic gymnasium work will be given through the year, and field athletics under careful training will be a permanent feature. The athletic interests are under the general supervision of the physical directors of the athletic association. All exercises that furnish wholesome and enjoyable physical recreation will be cultivated. An annual field day, with contests, will be held. A well-equipped gymnasium is in process of development, and it is hoped that a permanent athletic field may be secured during the coming year.

Library.—The library has come to be an indispensable department of an educational institution. It is a constant source of inspiration and culture to both student and faculty. Each department is furnished with its own special library, and the general reading room is being supplied as rapidly as funds will permit. It contains the best reference books, history, biology, science, poetry, fiction, psychology, and philosophy, a good supply of current magazines, and nearly all of the Territorial magazines and newspapers are kept on file through the courtesy of the proprietors.

Business correspondence.—A very large amount of business correspondence is done by the student during his course, in which he learns model forms of business letters of every kind. Shorthand, commercial arithmetic, penmanship, and rapid calculation, commercial law, and other branches are taught thoroughly. Altogether, this university is a credit to New Mexico, as it would be to any of the Eastern States. The faculty consists of teachers well trained for their work, and this school is rapidly forging to the front as one of the finest higher educational institutions to be found anywhere, and it is only a matter of a short time when it will be known, by the work it has accomplished, as one of the best educational institutions in the West.

NEW MEXICO NORMAL SCHOOL AT SILVER CITY.

The normal school of New Mexico, located at Silver City, designed to furnish the Commonwealth with competent teachers, was established by act of the Territorial legislature of 1893. In obedience to this act, its organization was perfected the following year by the election of a competent faculty and the adoption of a suitable course of study. While the permanent building was in process of construction, temporary quarters were secured for the accommodation of students. The new edifice, a structure well suited for school purposes and supplied with modern appliances, was dedicated with appropriate ceremonies in October, 1896. The third story has been completed.

This normal school has just completed the fifth year of its existence, with brighter prospects than any before since its creation. Its growth along all lines has been steady and substantial. In numbers, in organization, and in popularity with its patrons it has achieved all that is reasonable to expect from so young an institution.

Since making our last report the board of regents has, as above stated, completed the third story of the normal building, and has seated the assembly hall with opera chairs, and made such other improvements as their finances would permit. From funds arising from entertainments and other incidental sources considerable apparatus has been purchased and the number of books in the library greatly increased.

The number enrolled during the year 1899 was seventy-nine, and the average daily attendance of the current year indicates an increase over that of the last. The number graduated at the June commencement was seven, all of which were from the professional department.

To show that the normal has been fulfilling the purpose for which it was created, we call attention to the occupations of its alumni. Four classes, numbering twenty-five in all, have been graduated. Of these, three young ladies have married; four are students in higher institutions; fifteen are engaged in the teaching profession, and three are engaged in other occupations.

The financial aid received from the tax levy is, doubtless, the same as that of the other institutions, with the exception of the university located at Albuquerque. This has been most judiciously expended for teachers' wages and incidental expenses. That the amount received is not sufficient to maintain a school of the highest character is generally understood, and that this amount is inadequate to meet the expenses is best known only by those who administer its affairs. As an institution grows it should receive an amount commensurate with its development. Owing to the competency of the teaching force of the normal, however, we are doing a work equal to that of any other institution of a similar character in the West; hence we earnestly hope that the coming session of the legislature will deal with us as we merit.

The school maintains three departments of instruction: (1) Professional, (2) academic, and (3) business. The first entitles the graduate to a life certificate to teach in the public schools of New Mexico. The second comprehends those studies embraced in the term "secondary education." The third aims to fit the student to meet the demands of actual business life. The friendly relations established between the city schools and the normal has led to such an articulation as makes each mutually helpful, the former serving the purposes of a training school for the artisan teacher. The term begins September 1 and continues forty weeks.

It is the established policy of the board of regents to conform strictly to the law, administer duties in conformity to business principles, and exercise the strictest economy consistent with the demands of the school. The school needs increased funds for its maintainance and a dormitory for the accommodation of its students. We labor under the belief that the people of the Territory will recognize the merits of the normal school and the place it occupies in our educational system, and will supply its needs. This school has done remarkably good work, and with increased funds would be in a position to do much more in the future.

PUEBLO AND JICARILLA AGENCY,
Santa Fe, N. Mex., August 10, 1899.

SIR: I have the honor to submit the following report of the operations of this office for the fiscal year ending June 30, 1899:

PUEBLOS.

Population.—A partial census taken at the close of the fiscal year is transmitted herewith. It was found impossible to take a census at Acoma, Pahuate, San Felipe, San Ildefonso, Santa Ana, Santo Domingo, Tesuque, or Zuni, and the census obtained from Isleta was incomplete. However, I succeeded in obtaining statistics showing population of all pueblos except Santa Ana, at which place there is no Government employee, and it was found impossible to secure the desired information without incurring expense.

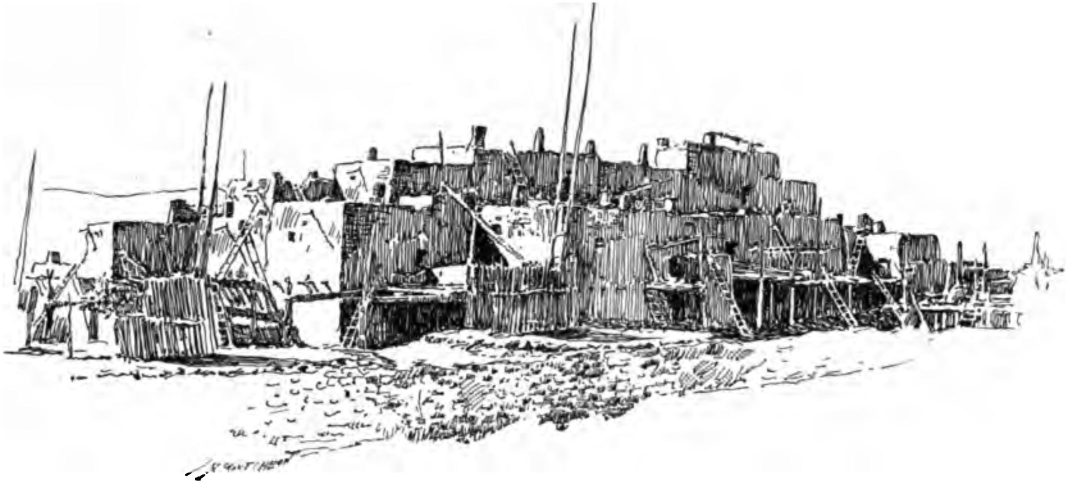
The statistics called for in office letter of June 17, 1899, are as follows:

Number of males above 18 years of age	2,498
Number of females above 14 years of age	2,325
Number of school children between the ages of 6 and 16	2,112
Number of school children attending school	1,102
Number of school children not attending school	1,010

While these statistics are in several cases estimates, they will be found approximately correct.

The population by pueblos is as follows:

Acoma (including Acomita)	,376
Cochiti	355
Isleta	1,000
Jemez	456
Laguna (Laguna proper)	292
Pahuate (subpueblo of Laguna)	375
Paraje, Casa Blanca, and Santana (subpueblos of Laguna)	183
Nambe	98
Picuris	96
Sandia	77
San Felipe	650
San Ildefonso	150
San Juan	378
Santa Ana	300
Santa Clara	248
Santo Domingo	1,015
Taos	402
Tesuque	84
Zia	104
Zuni (including Ojo Caliente, Nutria, and Poscado)	1,422
Total	8,961



PUEBLO OF TAOS.

Farm products.—The scattered condition of the Indians renders it impossible to gather statistics of farm produce which can be considered anything more than approximate, but estimates have been prepared by the various teachers showing as nearly as could be ascertained the quantities raised. Crops reported as follows:

Wheat	bushels	65,352
Oats	do	2,682
Corn	do	58,802
Potatoes	do	25
Turnips	do	25
Onions	do	7,295
Beans	do	25,053
Other vegetables	do	1,516
Melons	number	63,000
Pumpkins	do	14,900
Hay, cut	tons	793½

The pueblo of Isleta is so situated that it was impossible for the teacher there to give an estimate which would be satisfactory to himself, consequently this pueblo is not included in the above.

Methods of farming.—These in most cases are of the crudest, and are the same which have been in vogue for the past two hundred years. While the Indians are ready to make use of modern improvements when the same are offered them, they are not sufficiently cognizant of the advantages offered thereby to provide themselves with them. Nowhere can crops be raised without irrigation, which renders agriculture more arduous than in more favored sections of the country. The pueblos ditches and system of irrigation are fully equal to those of any of their neighbors, or in fact to any open-ditch system in use. It is in harvesting and thrashing their grain that the most antiquated methods prevail, wheat and oats being harvested with the old reaping hook which has been in use for thousands of years. Thrashing is done on a thrashing floor in precisely the same manner as among the peoples of three thousand years ago, viz, by driving animals over it until the grain is tramped out of the straw. In the process it becomes mixed with all manner of foreign substances, which have to be picked out with the fingers or washed in water from a ditch. It is needless to say that grain thrashed in this manner will not bring as good price on the market as it should. Even while having to contend with such discouragements several of the pueblos raise grain for market. If they were furnished with a few thrashing machines, one of which could be used by several pueblos, they would be enabled to make far larger profits on their grain and would raise more for market, thus enabling them to overcome their extreme poverty and advance in civilization.

Farmers.—During the year farmers have been appointed at Zuni and at Jemez. Although but a few months have elapsed since these employees were assigned to duty the beneficial results are already apparent.

Arts, etc.—The Pueblo Indians have always been noted for their proficiency in making pottery. The pottery produced is very beautiful, but it is also very fragile and can not be shipped without the greatest care in packing. This results from the method of manufacture. The dirt is made into a soft mud and pressed into the desired shape with the hands, after which it is dried in the sun. When it has become sufficiently hardened it is polished by rubbing with the palm of the hand and painted in various fantastic designs, after which it is burned in a slow fire kindled in the open air. All of the pueblos make more or less pottery, and each pueblo has its distinctive designs.

Weaving is also carried on to some extent in a few of the pueblos.

Schools.—There are now seventeen day schools in this agency, three having been organized during the past year. The attendance has been exceedingly good, as shown by the following:

Statement of attendance at schools of the Pueblo and Jicarilla Agency, N. Mex., for the year ending June 30, 1899, as compared with the year ending June 30, 1898.

School.	Average attendance.		Increase.	Decrease.
	1898.	1899.		
			Per cent.	*Per cent.*
Acoma	6.69	20.39	305	
Cochiti	11.73	15.99	36	
Isleta	16.52	30.09	22	
Jemez	26.43	26.71	9	
Laguna	15.78	31.06	33	
Nambe		16.93		
Pahuate	12.07	14.10	10	
Paraje		28.55		
Picuris		12.66		
San Felipe	17.57	25.55	44	
San Ildefonso	17.34	35.69	106	
San Juan	16.69	18.15		2
Santa Clara	14.36	19.61	37	
Santo Domingo	14.26	20.24	41	
Taos	34.92	34.39	38	
Zia	24.07	36.25	52	
Zuni	40.69	42.24	5	
Total	261.32	410.48		

Net increase agency schools for year, 57 per cent.

Most of the buildings are still in a very bad condition, though they show improvement over last year in some instances. Deeds to school sites have been secured at Nambe and Zia, and deeds have been promised at San Felipe and San Ildefonso, at which four places steps are now being taken to erect new school buildings costing from $1,000 to $1,500.

All the schools are now fairly well seated, nearly 200 double desks having been sent out during the year.

The work of the teachers has been of excellent character, in most cases showing a great amount of tact and interest in filling the schools to their utmost capacity, some of them showing an average attendance greatly in excess of the number which can be properly accommodated in the buildings.

During the year about 200 children have been sent from among the pueblos to the nonreservation schools at Santa Fe and Albuquerque, who, with the 742 children in the day schools and others in the contract and denominational schools, as well as those who were previously attending these nonreservation schools, brings up the total of 1,102 children now under educational influence.

Below is a detailed account of each of the day schools:

Acoma.—This school has shown great progress, especially in March and April, when the capacity of the building was taxed. The teacher, Miss Cora A. Taylor, has done her duty well. The industrial work and kindergarten work deserve especial mention. The girls have been taught to make their own clothing and show much skill in the work.

Cochiti.—As this pueblo was visited with two lingering epidemics during the year the school has not done as well as some others, but it has done wonderfully well considering the conditions. Nearly every month has shown an increase in attendance in spite of all difficulties. Mrs. J. B. Grozier, the teacher, has worked incessantly with the sick and has been a mother to the entire pueblo as well as to the school.

Isleta.—This school, while showing some progress during the winter, is not quite as satisfactory as it should be. The attendance for the winter months was good, but the spring months showed quite a decrease. The work of the teacher, Mr. James Hovey, is fairly good.

Jemes.—This is one of the best schools in the agency. The attendance is quite large, owing to the noonday lunch given here. The capacity of the building is severely taxed, and were there facilities a much larger attendance could be secured. Miss Emma Dawson, the teacher, has shown much tact, good judgment, energy, and executive ability in the discharge of her duties.

Laguna.—The school here was closed for several weeks on account of the smallpox, during which time the teacher, Mrs. Annie M. Sayre, worked heroically nursing the sick and caring for their wants. The death list would have been much larger but for her efforts.

The present teacher, Miss Margaret A. Bingham, is faithful and competent. She has increased the attendance largely since going to Laguna.

Nambe.—This school is one of our best in discipline, order, and method. All the children in the village are enrolled. The kindergarten work is exceptionally good. There is nothing but commendation to say of Miss Lampson and her school.

Pahuate.—This school, up to April 30, while under charge of Miss Annie H. Nichols, showed good progress both in attendance and school work.

Paraje.—This school was started May 1 and is proving most successful. Miss Fannie J. Dennis, formerly matron at the Zuni school, was promoted to the position of teacher here and has demonstrated that confidence was not misplaced in thus promoting her. Her school is progressive and fully up to the standard.

Picuris.—This is another new school started last April. During the short time it has been in session the teacher has had excellent success, and the attendance has been good considering the size of the pueblo. While this school can never be very large it gives promise to be among the most successful in character of work.

San Felipe.—During the early part of the year this school showed a decrease in its attendance, but this was compensated for by a large increase during the winter months. Mr. Taber and wife were hard-working and conscientious employees, and this good showing was largely due to their efforts.

San Ildefonso.—The showing made at this place has been almost phenomenal. With a school building having a capacity for 21 pupils and a scholastic population of 43, 7 of whom were in attendance at the nonreservation school at Santa Fe for a large part of the year, the year's average attendance was 35.69. Too much praise can not be given the teacher, Miss Anna H. Turner, for her energetic and persistent efforts in filling up the school and in keeping pupils in school who have once entered.

San Juan.—This school is further advanced than any other day school in the agency. Mr. Felipe Valdez is a faithful, capable teacher and a young man of sterling character. His school is remarkably well advanced, of good manners and breeding. Mr. Vlades plays the violin, using it for sacred and school music, much to the advantage of the school.

The children here sing nicely, enunciating as clearly as white children of the same grade. The comparative statement shows a slight decrease in average attendance, but this is fully accounted for by the large number who have entered the nonreservation schools from this pueblo during the past year. There are now more than 50 children from San Juan in attendance at Government and denominational boarding schools.

Santa Clara.—Under the charge of Mr. W. C. B. Biddle this school has made much progress during the year, showing a steady increase of attendance. His methods of teaching are good and results entirely satisfactory.

Santo Domingo.—The school here consists entirely of boys, but is doing fairly well. Mr. Holsinger has had greater difficulties to contend with than any other teacher in the agency, but he has succeeded in making his school compare favorably with the others. He is a faithful and conscientious worker and deserves great credit for what he has done.

Taos.—The Taos school is one of our largest, the attendance running from 35 to 46. The work of the teacher, Mrs. Alice C. Dwire, is entirely satisfactory. She has shown marked ability in handling so many ungraded pupils and at the same time teaching industrial work to the women of the village, besides caring for the numerous and ever-present sick.

Zia.—This school was in charge of Miss Margaret A. Bingham the first part of the year, but later was turned over to Mrs. Annie M. Sayre, of Laguna. It has made uniform progress, and on account of several attending who are past school age the average attendance for the year exceeds the scholastic population. The buildings are a disgrace to the service, but the school is a credit to both teachers.

Zuni.—The Zuni school had a very hard experience this year, but in spite of the terrible scourge which swept over the pueblo the school shows an increase in attendance. When it was reopened, about the middle of February, nearly all the children were in a very weak condition, resulting from the disease from which they were just recovering, which rendered much school work impossible for some time. The teachers, too, were utterly exhausted with their excessive duties in nursing the smallpox. I desire to emphasize the fact that it is impossible for employees in the Indian service to show more sacrifice, more heroism than did the employees of the Zuni school. Working from early morning till late at night, visiting smallpox patients, climbing ladders and descending into the polluted and filthy atmosphere of Indian homes with as many as seven infected patients lying on the floor of the room, relieving the sufferings of the living, and attending to the last offices for the dead, takes no common devotion to duty. History may not record these heroines, but any positions which these employees can fill to which they can be promoted will be but simple justice to them.

New schools.—New schools have been asked for at Tesuque, Santa Ana, Ojo Caliente, Nutria, and Poscado, the last three being outlying villages belonging to the Zuni pueblo. Experience has shown that wherever the Indians themselves request a school, as they have done at each of these places, it is a success when established, and I have no doubt these will prove no exceptions.

In addition to the schools which depend directly upon this agency there is a contract boarding school at Bernalillo, N. Mex., which is doing excellent work. The rooms, buildings, and premises generally are kept neat and clean and in first-class condition. A school garden is kept where the children are taught modern methods of raising vegetables and various kinds of industrial work. I can not say too much in praise of the effectiveness of this school.

Housekeepers and noonday lunches.—The appointment of a housekeeper at San Felipe and the noonday lunches which were authorized at that and several other schools have proved a decided success in increasing the attendance, and the system should be maintained and extended.

In general, I wish to say that the excellent showing made by all the schools for the past year has been due to the earnest and persistent efforts of each employee of this office, and the credit belongs to all.

Missionaries.—The missionaries of the Dutch Reform Church, Mr. A. Vanderwagon and wife, are supported at Zuni. Dr. C. E. Lukens is a medical missionary at Laguna, supported by the Presbyterian Church, and is doing a good work among the Indians. He rendered valuable service in fighting the smallpox and relieving the sick from other diseases.

Two teachers who conduct a school at Soama, a village of Indians lying between Laguna and Acoma, are also supported by the Presbyterian Church, and are doing very successful work.

In the St. Catherine's Indian School of this city, conducted by the Sisters of the Blessed Sacrament, about 100 Indian children are taught and cared for each year. Among the progressive Indians at the pueblos near Santa Fe are found the returned students from this school.

Health.—During the first four months of the fiscal year almost all the pueblos were severely afflicted with malaria, in most cases evidently caused by the bad water supply. This was especially true of the pueblos of Cochiti and Sandia where the disease was the worst. At Sandia during the month of August there were five deaths in twenty-one days, although it is a small pueblo of less than 100 inhabitants. It was found that the disease was caused by drinking stagnant water from an irrigating ditch. This condition has been remedied by the purchase of a pump and placing same in a well dug by the Indians themselves, thus insuring them in future an abundant supply of pure water for drinking purposes. At Cochiti the malaria was more virulent and persistent, about thirty dying and the sickness continuing until the middle of November. A well has been authorized, and when completed will greatly diminish the danger of such scourges in future. A few cases of what appeared to be cerebro-spinal meningitis appeared during the latter part of October, but the disease did not become epidemic.

When I took charge of the agency, July 1, 1898, I found that the smallpox which had been raging at Isleta for the past six months had about run its course at that pueblo, and very soon after my taking charge it entirely disappeared therefrom. During the months of June, July, and August it had reached the pueblos of Sandia and Santa Ana. During the latter part of August the disease obtained a foothold in the large and scattered pueblos of Acoma and Laguna and their outlying villages. The school at Acoma was closed from September 25 to October 10, when conditions had improved sufficiently to warrant reopening. The teacher at Pahuate requested authority to close, but before same reached her a change for the better rendered it unnecessary. At Laguna the school was closed October 17 and so remained until December 13. The teacher at Cochiti reported smallpox November 5, and it remained in this pueblo until February 10, causing twenty deaths. At Jemez the first appearance was October 26, after which time it spread slowly for a while, there being only sixteen cases December 2. By December 19 the number had increased to sixty cases and school was closed. However, it was reopened January 2, the teacher thinking that she could be better able to protect the children from infection if they were in school than if they were taken care of themselves in the village under no restraint whatever. Fifty-seven died here before the disease ran its course.

The first case was reported from the large pueblo of Zuni on November 13, though this pueblo had been threatened for several months. Both myself and the governor of the pueblo gave strict orders that no one should visit the pueblos afflicted, but one man disobeyed these orders and visited the pueblo of Acoma during some of their festivities, where he contracted the disease and carried it to his home. Upon receipt of notice that there was a case in Zuni I immediately telegraphed for fresh vaccine points and sent the supervising teacher there with full power to take such measures as might be necessary to stop the spread of the plague. He endeavored to quarantine the case, but the mischief had already been done and the disease spread with frightful rapidity, causing many deaths. It was not finally eradicated until March 9.

During the month of February there were twelve cases and one death at San Felipe, and fifteen cases and three deaths at Santo Domingo, but the disease did not gain much of a foothold, these two pueblos having been thoroughly vaccinated in January before the appearance of the scourge.

Later in the year one case appeared at San Ildefonso, two at Santa Clara, and one at San Juan. No deaths at either point.

The whole history of this epidemic proves that the responsibility rests with the utter worthlessness of the vaccine points furnished to this agency. Smallpox was first reported in this agency in December, 1897, by Captain Nordstrom, who was then Indian agent. He received and distributed, with instructions to use, 3,000 vaccine points immediately. Nearly all were actually so used. Later Captain Cooper, successor to Captain Nordstrom, distributed 5,000 more points throughout the agency. Captain Cooper also employed a physician to vaccinate all the Indians of the pueblos of Jemez and Zia. He used fresh vaccine points but there were very few "takes," and nearly all those considered as "takes" were very slight. That this vaccination was ineffectual is shown by the fifty-seven deaths reported above.

On August 17 I received notice that the pueblo of Zuni was threatened with smallpox. I immediately telegraphed for vaccine points, and on August 22 I mailed to Zuni 200 points received in response to my telegram. Again, on December 12, I mailed to Zuni 400 points that day received. Nearly a thousand vaccinations were made with these two consignments of points, with only a few cases taking. While Jemez and Zuni were the most utter failures, vaccination with these points was not successful in a single pueblo.

In response to an inquiry from the honorable Commissioner of Indian Affairs, relative to the efficiency of the points, I wrote the following letter:

PUEBLO OF JICARILLA AGENCY,
Santa Fe, N. Mex., January 26, 1899.

SIR: Referring to office letter of January 23, 1899, finance, 58096-98, 1435-99, I have the honor to state that whatever may have been the quality of the vaccine points when sent out by the vaccine establishment, they were worthless when received in this office. If they were subjected to too much heat or light, it was in the mails and not in this office. The points were used time and again upon employees of this office immediately upon receipt with no effect whatever. Time and again the points were mailed to different places and used in vaccinating Indians within five days after the date when they were said to be charged, but without effect. These points were used before they had time to be subjected to light or heat, and during the very few hours when it was necessary for them to be kept in this office they were kept in a cool place as directed.

My complaint is not about any special delivery of points; but points have been sent to this agency at least six times since I have been in charge, and they have not been satisfactory in a single instance.

Very respectfully,
N. S. WALPOLE,
United States Indian Agent.

COMMISSIONER OF INDIAN AFFAIRS,
Washington, D. C.

I had several times stated that points received were unsatisfactory, but had not given particulars, which gave rise to the inquiry above referred to.

As soon as smallpox was reported in a pueblo, I addressed a letter to the governor warning him of the danger of the spread of the disease and giving instruction how to maintain a quarantine. On October 26 I was in the pueblo of Zuni, and hearing that there would be a fiesta at Acoma in a few days, I called the attention of the Indians in council assembled to the fact that smallpox existed in that pueblo and instructed them not to go to Acoma. The governor also forbid all his people going. One man disobeyed orders and was taken sick about the middle of November and the night before the occurrence of the "shalake," the great relia physician resident at Laguna; the pueblos of Cochiti, Jemez, Santa Ana, Santo Domingo, Sandia, San Felipe, and Zia, containing 2,957 inhabitants, the third district, the physician to reside at Bernalillo; the pueblos of Taos and Picuris, containing 498 inhabitants, the fourth district, the physician to reside at Taos City, three miles from Taos pueblo; the pueblos of Santa Clara, San Ildefonso, San Juan, Nambe, and Tesuque, containing 958 inhabitants, to be the fifth district, the physician to reside at Santa Fe or Espanola. These pueblos have been grouped with reference to their proximity to one another rather than to their number of inhabitants.

Witch hangers.—On November 23 I made the following report of my action in this case:

PUEBLO AND JICARILLA AGENCY,
Santa Fe, N. Mex., November 23, 1898.

SIR: I have the honor to state that I found four Zuñi Indians confined in the Albuquerque jail awaiting trial for assault committed upon an old woman of their pueblo in March, 1897. These people thought that she was a witch and attempted to take her life, in which endeavor they almost succeeded. They had been in jail about thirteen months, during which time their trial has been postponed from term to term of the court. After consultation with Colonel Duncan, Indian inspector, Mr. Howard was sent to Albuquerque to procure the release of these Indians. They have, through his efforts, been released to appear before the court at its February term. The moral effect of this long imprisonment has been good. The Indians assured me that on account of the kind treatment these prisoners have received from this office they will place twenty-five children in the Albuquerque school. I have had a consultation with the district attorney, and he informs me that, in his opinion, when the case comes up for trial it will be impossible to convict them. In view of this it seems to me that it would be better to have the case annulled, with the understanding that they left on their good behavior, than to permit them to be acquitted.

This is the same case which has caused so much trouble during the administration of the previous agents, and was fully reported by Captain Nordstrom something more than a year ago.

Very respectfully,

N. S. WALPOLE.
United States Indian Agent.

The COMMISSIONER OF INDIAN AFFAIRS,
Washington, D. C.

Upon the recommendation of this office the case was annulled when it came up for trial at the February term, and the Indians were given to understand that it was an act of clemency on the part of the Government and based upon the presumption of their future good behavior.

Irrigating ditches.—A majority of the pueblos are sole owners of irrigating ditches, from which they are enabled to supply their lands with water. Some of these are among the best ditches in their part of the Territory, and supply the pueblos with an abundance of water. In some of the pueblos, however, the supply of water is inadequate for all the ditches and there is frequent scarcity.

The case of the Albuquerque Land and Irrigation Company *v.* The Pueblos of Sandia, Santa Ana, and San Felipe has been decided in the court in favor of the company. This is a case where the company proposes to construct an irrigating ditch through the land of these pueblos. It was opposed because at certain seasons of the year the Rio Grande has not sufficient water to supply the ditches of these pueblos and of the company at the same time, and the Indians fear that, as the headworks of the the proposed canal are above the head of their ditches, it will cause a scarcity of water in their ditches. The decision of the court permits the ditch to be dug, but does not permit the appropriation of water which the Indians at present have.

In the early spring the pueblo of Santo Domingo became engaged in litigation over the title to their ditch, water rights in same being claimed by certain Mexicans and water taken therefrom without consent of the Indians. The result of the suit was a complete victory for the Indians, they being given full and absolute ownership and control.

The pueblo of San Ildefonso became involved in similar disputes, but the matter was settled amicably, and I hope they will have no further trouble.

Civil proceedings have been brought by various parties against the pueblo of Nambe in reference to control of an irrigating ditch which is on Indian land and was constructed by the Indians. The case will be tried shortly.

Litigation.—Following is a résumé of the cases now pending or about to be instituted in the various courts in which pueblos are interested:

Acoma pueblo: None.

Cochiti pueblo: Nothing farther than a possible conflict of boundaries with the Caja del Rio grant.

Isleta pueblo: Should cases Nos. 274 and 275 of the land-court docket, now on appeal to the United States Supreme Court be affirmed, the matter of their surveys will be pending for settlement.

The matter of survey of cause No. 273 of the docket of the United States land court—the "Lo de Padillo" grant—is pending in said court.

Several of the Isleta Indians are incarcerated under indictment for assault with intent to kill.

I am advised by the attorney for the Pueblo Indians that the railroad is responsible for damages for killing an Indian boy of this pueblo. The matter has been placed in his hands with instructions to take steps to collect said damages. In case the railroad refuses to pay damages, suit will be brought so soon as the Indians can raise funds to pay court fees.

Jemez pueblo: Conflict in boundaries with the Vergara grant.

Laguna pueblo: The San José del Encinal grant, subject of cause No. 114, United States land court, which conflicts with the Pahuate tract, property of the pueblo, was confirmed by the court, but order subsequently entered that no decree of record be made until the United States Supreme Court decides cause No. 112, the Cuyamunge grant case, so that this matter may be said to be pending in the land court.

Suits in ejectment and for trespass in and upon lands of this pueblo are in order, and will be instituted as soon as funds are provided.

Nambe pueblo: An appeal is pending to Territorial supreme court from decision of district court of Santa Fe County, affecting adversely lands of the pueblo.

Suit against pueblo relative to irrigating ditch is treated under heading "Irrigating ditches."

Picuris pueblo: None.

Sandia pueblo: None.

San Felipe: This pueblo was coclaimant with the pueblo of Santo Domingo before the United States land court in causes Nos. 184, 184, and 185, consolidated, for what is known as the "Pasture grant," made to these pueblos jointly, A. D. 1770. The decision of the United States land court in their claim appearing to the pueblos and to their attorney to be contrary to law and justice, an appeal has been taken to the United States Supreme Court. The necessary funds for the printing of the transcript and brief will be raised by these pueblos at much sacrifice, unless the Government will provide for same.

Suit in partition and to quiet title will have to be instituted in behalf of this pueblo and Santo Domingo pueblo in the matter of the "Santa Rosa de Cubero" grant, No. 267 on the land-court docket, in which they have become interested by virtue of ancient purchases. These pueblos own nearly, if not the whole, of this grant, and it is included within their patents, but the claim of other parties render this course necessary.

San Ildefonso pueblo: A question of trespass upon pueblo lands.

San Juan pueblo: None.

Santa Ana pueblo; A question as to the survey under the confirmation of their grant is pending before the land court.

Santa Clara pueblo: The matter of the survey of the Canada de Santa Clara or Juan Tafoya tract, confirmed to this pueblo by the United States land court, is pending therein.

The matter of the Santa Cruz grant, cause No. 184, which offsets the eastern half of this pueblo grant, is pending in the United States land court, and will come up for final hearing at the approaching August term, 1899.

Santo Domingo pueblo: See above relative to San Felipe pueblo.

The Lo de Basquez grant claim No. 178 upon the docket of the land court is in conflict with the pueblos lands of Santo Domingo and order has been made by said court to make the pueblo party defendant. The case may come up for action at the approaching August term, 1899.

Taos pueblo: This pueblo is interested in the proper final adjudication in the land court, in which the same is pending, of the San Fernando de Taos grant, No. 149.

This pueblo claims, by virtue of ancient purchases, a large interest in the Antonio de Martinez of Lucero de Godoi grant adjoining the pueblo league upon the west and north thereof, which grant was confirmed by the United States land court in 1892, but the confirmees deny that any interest is held in said grant by the Taos pueblo.

The pueblo is much harrassed and imposed upon by trespassers upon their lands, and it will be necessary to quiet title in two suits, one as to the pueblo lands, or league, and one as to the Martines grant. These suits will entail considerable expense which the pueblo is not in a position to incur without sacrifice of some of their farming land.

Tesuque pueblo: None.

Zia pueblo: None.

Zuni pueblo: None.

The attorney for the pueblos has been instructed to push all the above cases as rapidly as possible.

In all these cases which are upon appeal there are certain court costs which the Government has not heretofore paid and which the Indians themselves are unable to pay without selling their farming land, and thus depriving themselves of future means of subsistence. The same applies to those cases which must be instituted in the district court, which includes all cases where lands belonging to the Indians are claimed by parties other than the United States and all cases of water rights.

In view of the above, I respectfully recommend that the sum of $1,000, or so much thereof as may be necessary, be appropriated and authorized for the payment of court expenses in cases in which the pueblos are interested.

Present condition.—On account of the scarcity of rain during the early part of the season, there being practically no rainfall from October until July in any of the country occupied by them, the various crops on which they depend for a living are in most cases a complete failure. Corn was planted in the dust in the hope that rain would come and supply water for irrigation, but the rain did not come and consequently the seed would not germinate. In most cases what little water was found in the streams was the subject of continual dispute between the various parties owning the water rights, none of them being able to secure the amount of water usually appropriated. In addition to failure of the cereals the late frosts in the spring destroyed all the fruit, so that the magnificent fruit trees which furnish a large part of the food of the people are this year of use only for their shade. Last year the great poverty of two of the pueblos was such that it was necessary to extend Government aid in order to prevent starvation. Every appearance points to the fact that through no fault of their own many of the Indians will be on the point of absolute starvation, and it will be necessary to extend far more aid than last year to prevent numbers of them from dying from hunger.

Last year 12,793 acres were cultivated by the Indians; they raised thereon 65,353 bushels of wheat, 58,801 bushels of corn, 25,053 bushels of beans, besides small quantities of other vegetables. A very conservative estimate of the value of products of Indian labor sold in the market last year places the amount at $50,000. These figures show that the pueblos are worthy of the utmost consideration and are not afflicted with proverbial "laziness" of the other Indian tribes of the United States. They have always been a self-supporting people, living in peace with their neighbors. Their disposition to permit themselves to be imposed upon rather than engage in strife is taken advantage of by their neighbors, and thus they lose some rights which belong to them.

They own 7,294 horses, 490 mules, 3,018 burros, 3,184 cattle, 1,019 swine, 70,332 sheep, 2,020 goats, and 3,871 domestic fowls.

JICARILLA.

Population.—The census taken June 30 shows a population of 832—407 males and 425 females. There are 251 children of school age, 120 being males and 131 females.

Agriculture.—This reservation has very little arable land, but is one of the best grazing districts in the Territory. Water could be secured from Dulce and Stinking lakes, 6 and 26 miles south of Dulce, which is the agency headquarters, and a part of the reservation be placed under irrigation, whereby the Indians could be enabled to raise farm products successfully.

Timber.—A large part of the reservation is covered with exceptionally fine timber, part of which could be marketed and the proceeds used in the purchase of cattle and sheep for the Indians. In this way the Jicarilla Apaches can be made self-supporting in a very few years, but unless they are given the means to turn their attention to stock raising they will continue to be a care to the Government for many years to come. This timber standing as it does is of no value to any one, but could easily be the means of giving the Apaches a start in self-support, which would be the means of relieving the Government of the responsibility and transform them from dependents to citizens.

Allotments.—Some years ago allotments were made to the Indians then living, but owing to confusion of names it has been found impossible to deliver most of the patents, only about 14 per cent of them being delivered, the others remaining stored away in the agency office for lack of means to identify the Indians to whom the patents belong.

Missionaries.—Two ladies are supported by the Methodist Church at Dulce, and are doing everything in their power to elevate the Indians and give them moral and religious instruction. They hold weekly religious services and in various ways contribute to the uplifting of the people among whom they labor.

Roads and bridges.—It has been impossible to keep statistics of the amount of work done by the Indians on roads during the year, but 6 miles of new road have been built and all old roads and bridges kept in good repair.

Arts and trades.—These Indians are noted for the excellence of their baskets, and arrows, and beadwork. A large proportion of the amount realized from sale of products of Indian labor came from these items.

Indian courts.—The court here is composed of three judges, who look after minor offenses on the reservation. Drunkenness is punished by confinement in the agency jail, 67 cases being so dealt with during the past year.

Products and stock.—There is 800 acres of land cultivated by the Indians, on which they raised 225 bushels of wheat, 600 bushels of oats, 125 bushels of corn, 500 bushels of potatoes, 20 bushels of onions, 35 bushels of beans, and 50 bushels of other vegetables. They also cut 700 tons of hay, part of which was marketed.

They own 1,650 horses, 10 mules, 250 burros, 95 cattle, 2,500 sheep, 500 goats, and 75 domestic fowls. They have the means to care for a much larger quantity of stock of all descriptions.

Issues.—About half the support of the Apache Indians is derived from the issue of Government rations, though the rations issued are not half sufficient to supply their actual needs. Issues are made semimonthly.

There are also small issues of annuity goods each year, but no annuity money, so that all money which they obtain is derived from the sale of their own products.

Education.—These people are as yet without school facilities, and the matter has been very strongly advocated during the past year. Plans and specifications are being drawn for a school building with capacity of 228. This is a very important move and the building should be completed as soon as possible, as the Indians are very anxious to have their children educated, but are unwilling to send them to distant schools. There are on the reservation 251 children of school age, none of whom are in school anywhere.

Health.—I was notified by wire, March 8th, that there was one case of smallpox on the reservation. I took the first train for the reservation and wired to St. Louis for vaccine points and tubes. On reaching Dulce I established a pesthouse and employed nurses to care for the sick. As soon as vaccine matter could be procured the whole tribe was vaccinated. All cases taken sick were confined in the pesthouses, another being established on a different part of the reservation a few days later, until their recovery, when their clothing was burned and new clothing issued to them.

I found it much easier to control the disease on this reservation than among the pueblos on account of these Indians not being so closely crowded together.

Investigation showed that the smallpox was introduced by a Mexican trespassing on the reservation at a point 25 miles from the agency.

During the months of March and April there were 27 cases and 11 deaths.

Too much credit can not be given to the employees for their faithful and fearless work in vaccination and caring for the Indians who were exposed or afflicted with the disease.

Dwellings.—During the past year 42 dwellings were built on the reservation, making a total of 290 now occupied by Indians. They are gradually leaving their tepees for the greater comforts of houses.

Present condition.—The severity of the past winter was such that the Indians were compelled to use their seed grain and potatoes for food in order to relieve their hunger, which necessitated the issue to them in the spring of new seed for planting. There is every prospect that conditions will be more severe this year, as their crops are almost a total failure owing to the extraordinary drought of the past nine months, and they will be compelled to live upon the Government rations, which are not sufficient to keep them from want, supplemented with the small amount earned from the sale of bows and arrows, baskets and beadwork.

Respectfully submitted.

N. S. Walpole,
United States Indian Agent

The Commissioner of Indian Affairs,
Washington, D.C.

INDIANS.

The following is a list of the Indian pueblos in New Mexico, with the population of each:

Acoma, 504; Cochiti, 300; Isleta, 1,060; Laguna, 945; Nambe, 75; Piscuris, 110; Pojaque, 20; Santa Ana, 222; Sandia, 126; Santa Clara, 200; Santo Domingo, 793; San Felipe, 475; San Ildefonso, 112; San Juan, 360; Taos, 375; Tesuque, 85; Zia, 100; Zuñi, 1,500—making 18 pueblos in all.

The Mescalero Apaches occupy a reservation within the boundaries of Donna Ana and Lincoln counties. They are far removed from the predatory tribes, and have not given any trouble since the early eighties.

The Navajos cut a very small figure in New Mexico. Their reservation occupies 15,000 square miles, of which only about 1,900 square miles are within New Mexico, and that small portion is confined to the extreme northwestern corner. These Indians own over 2,000,000 head of sheep, 2,500 head of cattle; the Government is reclaiming their land by irrigation, and the settlers need fear no incursion from them; they are under the charge of an army officer and are perfectly amenable to authority.

In this connection it might be mentioned that the Government never took a wiser step than to remove the control of Indians from civil to military authority. It has worked wonders in New Mexico. The army officers handle the Indians with a certain firmness that quickly begets docility, and the Indians themselves soon learn that they fare better.

MESCALERO RESERVATION.

A marvelous transformation took place on the Mescalero Apache Reservation in southern New Mexico during the two years that First Lieut. V. E. Stottler, Tenth Infantry, United States Army, served as acting agent. The Indians numbered over 500, one-fifth being children of school age. Nurtured in ignorance and superstition and reared in filth and laziness, these Indians have for forty years stubbornly refused to respond to the Government's efforts to civilize them. For a generation they have received rations of beef, coffee, flour, sugar, clothing, farm implements, etc. Good schools were established for them and dwellings built at the Government's expense; still they stuck to their rawhide tepees and persistently refused to school their children or to adopt the civilian dress, adhering to their breech clouts, blankets, and long hair. With the millions expended annually in education, next to nothing was being accomplished. There were about 500 acres of irrigable and good land on the reservation, but the Indians were too lazy to plant crops that would have furnished them with food necessary for their support. It was much easier and more pleasant to draw rations from an indulgent and paternal Government and reserve their energy for war dances and brawls. There were 25 strong, broad-shouldered bucks, educated at the expense of the Government, running around the reservation in paint and blankets. They were too lazy for manual labor. Several educated squaws were married and living in filthy tepees, while girls were taken out of school at 10 and 12 years of age and sold for ponies into a bondage worse than death.

Lieutenant Stottler's predecessor had ordered the bucks to cut their hair, and a revolution resulted. They refused point-blank and that settled it. Stottler's first move was to increase the rations of the police. He then informed them that they must all put on uniforms under pain of duress. They reluctantly obeyed. Then he ordered them to cut their hair. This caused a storm, and the matter was allowed to rest for a while. His next command was to abandon tepees and move into dwellings. All children over 5 years old were ordered to attend school. This was too much, and, by the advice of some of the whites, a petition was forwarded to Washington asking for Stottler's relief as agent. No attention was paid to the request, and the ringleaders were spotted and severely punished. The chief of police, an Indian, had been one of the instigators in this move, and he was discharged as such and put on reduced rations. Several of the headmen of the tribe were ordered to work and deprived of the office of spokesmen, under which system the other members made their wants known through the agent. In this capacity the headmen had been allowed extra rations and a small salary, and their reduction to the ranks made it possible for any member of the tribe to apply personally for what he needed in the way of land, implements, etc. This was an important point—to break the power of the chiefs and destroy tribal relations. It was constantly impressed upon the Indian that in a few years rations would be cut off entirely, and those who had not taken the land for cultivation would go hungry. At first they laughed at this, but the officer, by way of example, cut off the food occasionally, and they at last came to realize that it would be a very easy matter to stop all rations. This had a salutary effect, and induced many of them to go to work. Every man and woman caught manufacturing "tiswin" was made to understand that it meant a long season in the guardhouse on bread and water.

Now, all is changed. The Government's agent is absolute master. Vegetables of all kinds are raised in abundance, and everything in the way of stock on a farm is also raised by the Indians on this reservation. During 1896, upon the recommendation of Lieutenant Stottler, the Government issued 5,000 sheep for distribution among the tribe and 500 for the school. The idea was to have the Indians raise their own mutton and then cut off the supply of beef, which cost the Government $6,500 per annum. These Indians have been made almost self-supporting by the methods inaugurated by Lieutenant Stottler while in charge. Every male on the reservation has cut his hair, put on civilized dress, and taken a piece of land which he has fenced, and commenced to raise grain and vegetables. They all have cabins with cook stoves and utensils. Every man has 10 head of sheep and a like number for each member of his family. Every child on the reservation is at school. Every man has a wagon, harness, and plow. In the short period of two years these Indians have been transformed from lazy, filthy savages in red paint and breech clouts into reasonable working human beings with a care for to-morrow and a desire to become useful citizens. The United States Indian agent who has taken the place of Lieutenant Stottler says that the Mescalero Indians are steadily advancing toward civilization and self-support; that they now receive no aid from the Government in the way of rations and supplies. Their ranches compare very favorably with the ranches of their white neighbors which surround the reserve. Their crops of oats, wheat, corn, potatoes, cabbage, etc., are in the finest condition, and an abundance for sale is expected. They expect to dig 2,000,000 bushels of potatoes this fall, worth at 1 cent per pound, $20,000. This is only one small item, as their oat and wheat crop should bring in more than the above amount. Altogether, the great progress of the Mescalero tribe of

Indians in this Territory is something to be proud of, and it demonstrates the possibilities of this race, which heretofore has always been a ward of the Government.

NAVAJO INDIANS.

FORT DEFIANCE, ARIZ., *August 28, 1899.*

MY DEAR GOVERNOR: Complying with your request for a statement concerning the condition of the Navajo Indians under my charge, I respectfully submit the following:

The condition of the Indians on this reservation is undoubtedly improving financially and morally, although the last winter was probably the most severe of any in the history of this country, which caused a heavy loss among their flocks, on account of the very deep snow and the unusually cold winter. This condition, however, was not confined to this locality alone, as the severe cold extended over the greater part of the United States. Notwithstanding the severity of the winter there has been no case reported to me of any Indian either starving or freezing. From the most reliable information I can obtain the greatest loss occurred on the western part of the reservation in Arizona, in a country that has usually been free from snow. The spring has been rather backward and in some localities there has been a lack of moisture, but those who planted and attended their crops well will have quite a fair crop, and as we have had during July and August copious showers of rain the grass has made such wonderful growth that every indication now is that their stock will go into the winter in good condition.

The disposition of these people is generally good. They very seldom have any serious troubles among themselves and but very few complaints are made against them by the whites, and nothing of a serious nature, although along the border of the reservation they have very frequent business transactions with the white settlers. Some on the eastern border, and especially a few that reside off the reservation in New Mexico, are inclined to more readily adapt themselves to the ideas and customs of the whites, and I have induced a few of them to dig wells on their places for the purpose of procuring water for their herds, which has proved a grand success, as some of them have secured an abundance of water at a depth of about 20 feet, and I shall use every effort possible to induce others to follow their example, which, if successful, will go far toward solving the water problem. The main support of these people is stock raising and the manufacture of Navajo blankets; the sale of blankets alone will amount to possibly $100,000, and the wool clip sold will far exceed that. The sheep pelts and goatskins sold from their butcher stock will amount to many thousands of dollars.

Very respectfully,

G. W. HAYZLITT,
United States Indian Agent.

Hon. MIGUEL A. OTERO,
Governor of New Mexico, Santa Fe, N. Mex.

INDIAN SCHOOLS.

SANTA FE INDIAN INDUSTRIAL SCHOOL,
Santa Fe, N. Mex., September 6, 1899.

SIR: I have the honor to transmit herewith copy of my first annual report of the Santa Fe Indian Industrial School, which original report I have sent to the honorable Commissioner of Indian Affairs.

I receipted for the property and took charge September 1, 1898. For statistical information see tabular report herewith transmitted. It has been the aim of the management to carry the school as an entity, with its two main functions of exactly the same importance. As the name indicates, this is an industrial school, and the handicraft functions must not in any case be overshadowed by the literary function; both must go hand in hand. To this end I have labored early and late to impress upon both employees and pupils that each and every employee of the school is a teacher in the fullest sense of the word. I maintain that my school cook should occupy the same social status as does the most advanced literary teacher in the corps. When a condition of affairs pertains at a school that will allow of a teacher considering himself better than some other teacher because, perforce, one teaches the three R's and the other the manipulation of material by hand, there is, to my mind, something wrong. I am glad to say that at this school our handicraft employees are not considered shoemaker, tailor, etc., but teachers of the various trades mentioned. It is wonderful what a change has come over this school since the pupils have come to understand that this is a fact. Now the boys and girls in the various trade departments take criticism as kindly from their manual instructors as they do from their instructors in the school rooms. They have learned that the whole purpose of the shops is instruction. They fully realize that they are in the various shops to learn how to manufacture the numerous articles. The learning is what they are there for and whatever they produce is a "by-product." For instance, they manufactured a wagon, not because we needed such an article, but because they learn from the making how to make another wagon.

As shown by statistics, this school can accommodate 300 pupils. The plant is large enough so that we can make an average of this number, which, of course, means that some time during the school year we must carry many more than 300. I know that it is not an uncommon thing for schools of this class to carry an average attendance of 100 per cent upon the enrollment. I can't do this, and I "am not much of a George Washington, either!"

As data in the Indian Office shows, the number of children of school age who have no school accommodation and who are in reach of this school goes up into the thousands. It would seem that this plant should be enlarged to at least twice its present capacity. I am satisfied that the moment we are really equipped to give first-class instruction in the various trades we will be overrun with real Indian children. Of all the various tribes of Indians whom I have met and studied the ones which naturally gravitate to this school are the most thoughtful and observant. For instance, in all my years of work with Indians before coming here I found, without almost a single exception, that the Indian parent demands three things of the school and three only. These demands are as follows: (1) My boy must be well fed; (2) he must be well clothed; (3) he must not be punished. Here they expect these three things and enforce them with a resounding continuous howl when these three things are not complied with; but they demand more. When inspecting the industrial departments their criticisms are just if they are not generous. These huts which we call shops are not at all to their liking. The excellent tools of which we have a fair supply invariably meet with their hearty commendation. The competent tactful employee is known, marked, and complimented, both to his face and to the management, but the incompetent instructor invariably meets with that expressive "ugh," which to us who know the Indian means almost a whole volume. I am satisfied that were the equipment of this school what it ought to be all we would need to fill it up to twice its present capacity would be to invite the headmen of the various tribes and pueblos to come and inspect the plant thoroughly, and they would be followed by all the real full-blood Indian children we would care to see in one school. We take special pride in the fact that without a doubt these pupils average nearer pure Indians than do the pupils of any other nonreservation school in the service, and it is the consensus of opinion that for "staying qualities" when once educated the full blood far exceeds the mixed blood.

The location of this school is ideal. The climate is all that could be desired, the water is superexcellent, the drainage is perfect, the personnel of the force of employees is of the best, the equipment in a literary sense is good, but to get and hold our pupils our equipment for manual instruction must be put upon a plane equal to that of our very best Eastern schools. Nothing short of this must be thought of. Give this school an equipment such as the most advanced thinkers in your office would indorse, and we will fill a school of any capacity that the Indian Office may see fit to erect here, and we will fill it with real Indian youth; and, further, we will fill it without drawing upon children who would, were this school not here, be in some Eastern school. I am most thoroughly in sympathy with the Eastern schools and rejoice to see them grow in numbers and efficiency, but there are Indian children almost without numbers in the vicinity of this school who will never under any circumstances go far away to school. So, while maintaining perfect loyalty to my friends in the Eastern schools and pledging myself to use every influence to persuade any and all of these Indian youth to take advantage of the grand opportunities offered by these schools, I most earnestly and respectfully urge that these children who can not or will not be persuaded to go East be given a chance here among the mountains of New Mexico to get as broad, comprehensive, and useful education as (aside from the environment of a cultured civilization) they can get in any of our great contemporaries.

I reiterate, give us the equipment and we will get the pupils.

Thanking you for the prompt and favorable responses that my requests and recommendations have met at your hands, I am, very respectfully,

A. H. VIETS, *Superintendent.*

Hon. MIGUEL A. OTERO,
Governor of New Mexico, Santa Fe, N. Mex.

SANTA FE INDIAN INDUSTRIAL SCHOOL,
Santa Fe, N. Mex., September 4, 1899.

SIR: Referring to your circular office letter "Education," No. 29, of June 26, 1899, asking for data upon which your office will prepare its annual estimate for support of schools, I have the honor to make the following statements:

Number.	For what used.	Character.	Condition.
1	Bakery	Brick	Good.
1	Barn	Frame	Do.
1	Blacksmith shop	do	Fair.
1	Carpenter shop	do	Do.
1	Employees	Brick	Foundation defective.
1	Hen house	do	Good.
1	Hose cart	Frame	Do.
1	Hospital	Brick	Do.
1	Hot house	Frame	Fair.
1	Laundry	Brick	Good.
1	Laundry addition	do	Do.
1	Main building	do	Do.
1	Oil room	do	Do.
1	School building	do	Do.
2	Summer houses	Frame	Do.
1	Tailor and shoe	do	Do.
2	Water closets	do	Fair.
1	Warehouse	Brick	Good.

(1) Present enrollment, 296; average attendance, 258½.

(2) Probable increase of some 100 or more, if authorized.

(3) *Scholastic population from which school is supported.*—From various pueblos of New Mexico with a school population of 1,400, and from Pima and Navajo agencies, and normal pupils from all Western States and Territories.

(4) Nineteen buildings—9 brick, 10 frame; condition, see above; capacity, 300; value, $49,758.

(5) (*a*) The sewerage is fairly good—10-inch main empties into a dry ravine about 1,000 feet from the school buildings, and is carried by rain floods to the Santa Fe River about 3 miles below Santa Fe, N. Mex.

(*b*) The water supply is furnished by the Water and Improvement Company of Santa Fe from their 10-inch water main, which is laid in front of the school grounds. The school is supplied with good quality of water and in sufficient quantities for the irrigation of 10 acres of ground.

(*c*) Heating is by wood and coal and is as good as can be obtained by that system.

(*d*) Lighting is by kerosene lamps.

One blacksmith shop, one carpenter shop with addition. These are frame buildings and they are a disgrace to the school and should be torn down. In view of the proposed increased capacity and growing needs of this school, I deem it an absolute necessity to have here a trades building and one fully equipped and large enough to teach all the various trades that should be a course of instruction in a school of this kind. For the construction of a building of this kind I most earnestly and urgently recommend that a sum not less than $15,000 be appropriated, for I consider the same to the best interests of this school and the Indian service.

Equipment of shop.—In order to properly equip this shop and to carry on the various industries as desired by your office and myself, it will be absolutely necessary to have therein one 50-horsepower engine, 2 good large boilers, 1 heater and filterer, 160 feet of shafting with sufficient hangers, pulleys, steam gauges, 1 pump, valves, and pressure gauges. In this connection I have also taken into consideration and included in my estimate sufficient piping for conveying steam heat to all necessary buildings on the place. The total cost for the same will not exceed $5,775, and I most respectfully ask your favorable consideration of the same.

School-building extension.—Its capacity will be about 150. There are now about 300 pupils on the ground. It will therefore be necessary to still use the rooms in the main building for school purposes. In view of this fact, I most earnestly and urgently recommend that an addition be made to this school building to increase it to 300 capacity. The cost for the same will be $6,600, which I consider as most conservative, and respectfully ask you to consider the same in a favorable manner.

Dormitory.—One of the great needs of this school is a dormitory building with a capacity of 350 at least. The appropriation for this building should be most seriously considered and without delay.

I have no hesitancy whatever in saying that it can be filled as soon as completed. Indian Agent Walpole and Inspector of Day Schools Burton assure me that there is not the shadow of a doubt but that it can be filled to overflowing as soon as completed, and they have expressed a willingness to do all in their power to assist me in my efforts to do so.

I most earnestly ask you to give this matter your careful consideration. This school can be increased and it will be increased to meet your full expectations if Congress gives us the assistance the school deserves and is unstinted in its liberality to us. I respectfully ask that a sum not less than $26,000 be appropriated for this building. It will give us a building that we may be proud of and one that will be a credit to the service.

Heating.—There is no possible reason why this school should not be heated with steam, and a plant for that purpose can be established here at a most reasonable cost. It would greatly add to the health, comfort, and convenience of everyone here and be one of the main factors in bringing this school up to the standard desired. I most respectfully request that a sum not less than $8,700 be appropriated for this purpose. I am certain that with this sum and with an economical use of the same I can have the work completed in every respect in a first-class and workmanlike manner.

Repairs and improvements.—In this line there is always a great amount to be done. I urgently recommend that a sum not less than $3,000 be appropriated for this purpose. This I consider a most conservative estimate, and if appropriated it will be most economically expended for the best interests of the school.

Warehouse.—This is a one-story brick building and is in good condition, but is entirely too small to store more than one-fourth of the school supplies. It has been necessary for me to store the supplies in the cellars and lofts of the various buildings, and this has been a constant source of annoyance. A good large addition should be made to this building, and I most urgently and earnestly recommend, for the best interests of this school, that a sum not less than $2,000 be appropriated for this purpose. This building was even too small when the appropriation was for 150 pupils, and now, when the supplies received are for 300 and must be even greater in the future, it will be an absolute impossibility to store the supplies without the greatest annoyance and inconvenience and without occupying rooms that are required for other purposes.

Lighting.—An appropriation of $3,000 for an electric-lighting plant at this school was available during the year ending June 30, 1899, but after making every possible effort it was found that not even an inferior system could be installed for that amount. The necessity for an electric-light plant at this school has been demonstrated to your office, and the increased capacity of the school makes the demand for it even greater now. I most respectfully urge that a sum not less than $4,500 be appropriated for a thorough and complete electric-lighting system, and that this appropriation be immediately available. In connection herewith I wish to state that, if an appropriation for a trades building and equipment of same be made as asked for, only $2,000 be appropriated for electric equipment, as the engines and boilers for the trades building will furnish the power for the electric-lighting system.

Water and sewerage.—A sum not less than $2,000 should be appropriated for this purpose. The yearly expense for sufficient water for irrigation and domestic purposes is $1,500, and the balance ($500) is a most conservative estimate for keeping the same in repair and extending and repairing the sewerage system as required.

RECAPITULATION.

Trades building	$15,000
Equipment of same	5,775
School-building extension	6,600
Dormitory	26,000
Heating	8,700
Repairs	3,000
Warehouse addition	2,000
Lighting	4,500
Water and sewerage	2,000
Total	73,575

A. H. VIETS, *Superintendent.*

The COMMISSIONER OF INDIAN AFFAIRS.

SURVEYOR-GENERAL.

The following is taken from the annual report of the United States surveyor-general for the district of New Mexico for the fiscal year ending June 30, 1899:

The sum of $10,000 from the appropriation for surveying the public lands for the fiscal year ending June 30, 1899, was apportioned to the district of New Mexico.

Under said apportionment one contract, liability $3,000, was awarded and approved; fourteen sets of special instructions (total liability, $1,327), in lieu of contracts and bonds, providing for resurveys and making connection of private land claims with the public land surveys were awarded, payable from this appropriation.

Six contracts (total liability, $3,025.75) and three sets of special instructions (total liability, $550) were awarded, issued, and approved, payable from the appropriation for the survey of confirmed private land claims in designated States and Territories for the fiscal year ending June 30, 1899.

The total number of miles of different lines established during the year aggregate 1,462 miles 32 chains and 38 links.

Two thousand and fifty-five letters were written during the year, and 416 official letters were received and recorded; plats, transcripts, and field notes compared and transmitted or ready for transmission, 610; special instructions for the survey of public land grants and small-holding claims made out in duplicate, 42; general instructions for the survey of small-holding claims prepared in triplicate, 27; mineral plats prepared, 124; books of field notes examined and corrected, 208.

During the fiscal year 171 tracings and descriptive lists were furnished to the district land offices—Santa Fe, 73; Las Cruces, 92; Roswell, 6; total, 171.

For the fiscal year ending June 30, 1899, $1,600 was deposited on account of the surveys and amended surveys of mining claims; reports were made on 65 placer and load mining claims.

During the said fiscal year mining-district plats were completed for the 77 mining districts in the Territory of New Mexico, which required the making of 138 distinct plats.

In his annual report the surveyor-general says:

During the said fiscal year 46 townships have been platted, showing sections and lots made fractional by mining locations situate therein, the areas computed, and tracings of same furnished to the local land offices and to the General Land Office. There is still a large amount of this work to be done, which should be finished at the earliest practicable date. On account of numerous errors in old mining surveys, it has been found impossible to properly plat and show fractional lots in the numerous townships in which the same are situate, and the same should be taken up at an early date with a view to straightening out all such irregularities, after which the same should be platted and tracings of such township furnished to the local land offices in the different districts of the Territory and to the General Land Office.

I would urge the importance of an appropriation for the restoration of mineral monuments and their proper connections with public surveys and with each other. A majority of the mineral monuments in this district are on unsurveyed ground and mining claims connected with such monuments. Most of such monuments were established many years ago, without regard to their permanency of construction, and were insufficiently witnessed. Many of these monuments have now become obliterated or destroyed, and as the same are the official points of reference by which to fix the locus of all surveyed and patented mining claims, it is of great importance that they should be properly perpetuated, and they should be reestablished permanently and witnessed by connecting them with public surveys, with each other, and with natural objects.

Mining-claim surveys should be examined in the field to insure their correctness, in a like manner as the surveys of public lands and private land claims, to obviate errors and irregularities, and in order that patents to such mining claims shall properly recite claimants' lands, and I believe claimants are entitled to such a proper safeguard. Numerous patents for mining claims in this district recite wrongly the lands which claimants intended to cover, by reason of errors in lines and connections made by deputies during the past thirty years.

The act of Congress approved March 3, 1891, entitled "An act to establish a Court of Private Land Claims, and to provide for the settlement of private land claims in certain States and Territories," provides, among other things, that—

> No allowance or confirmation of any claim shall confer any right or title to any gold, silver, or quicksilver mines, or mineral of the same, unless the grant claimed affected the donation or sale of such mines or minerals to the grantee, or unless such grantee has become otherwise entitled thereto in law or in equity, but all such mines and minerals shall remain the property of the United States, with the right of working the same, which fact shall be stated in all patents under this act, and no such mines shall be worked on any property confirmed under this act without the consent of the owner of such property, until specifically authorized thereto by an act of Congress hereafter passed.

No act of Congress has yet been passed giving persons the right to work the mines or minerals on grants confirmed under this act, and in view of the fact that a large number of persons in this district have made locations of mining claims upon lands which are or will be included within the boundaries of grants confirmed under said act, in justice to such locators, and to carry out the intentions of said act of March 3, 1891, an act of Congress giving miners the right to work such minerals as are reserved in the confirmation of grants by the said Court of Private Land Claims should be passed at an early date. Such a law would greatly facilitate the development of the natural resources of the Territory within interior boundaries of said grants and materially benefit our population. I request that your office present this matter properly before the next Congress and urge the passage of an act for the purposes as herein recited.

There are still pending before the Court of Private Land Claims 35 cases. Within the 35 grants pending there are between 4,000,000 and 5,000,000 acres of land. Twenty-two private land claims have been surveyed or corrected surveys of the same, made under decrees of approval and confirmation by said court during the fiscal year.

There have been upward of 4,000 small-holding claims filed under the provisions of sections 16 and 17 of the act of March 3, 1891. Such of said claims as are located upon townships not heretofore surveyed, and as are found upon proper investigation to be valid, are being surveyed as the lines of public surveys are extended over such townships.

Sixty-three mineral surveys were executed during the fiscal year ending June 30, 1899. Seven mineral surveys were ordered during the year of which no returns have as yet been made. Fifty-one placer mining claims were examined and reported upon during the year.

Forty-nine mineral monuments were established and approved during the fiscal year.

In his estimate for the survey of the public lands, small holdings, and private land claims for the year ending June 30, 1901, the surveyor-general submits the following items, viz:

For survey of public land and "small-holding" claims filed under the act of March 3, 1891. as amended February 21, 1893, $25,000.

For the survey of private land claims, $20,000.

Commenting on the greater necessity for the survey of public lands in the future than has been in several years past, the surveyor-general reports as follows:

> The unsurveyed lands in numerous localities in this district are being rapidly settled upon, and as such settlers will continue to locate upon such lands, there will be greater demand for public-land surveys in the future than there has been in the past. There are approximately 2,400 small-holding applications on file in this office for tracts of land in unsurveyed townships and within the boundaries of unconfirmed grants. A majority of said tracts will have to be surveyed when

UNITED STATES COURT OF PRIVATE LAND CLAIMS.

SANTA FE, N. MEX., *September 11, 1899.*

MY DEAR SIR: I am in receipt of your letter of September 8. Pursuant thereto I take pleasure in inclosing herewith tabulated statements of the work of the Court of Private Land Claims during the year ending September 8, 1899, and also showing status of the remaining business on the New Mexico docket of that court. I regret that this data has not reached you sooner, but the receipt of your letter was the first intimation which this office had that it was desired. In addition, the summer session of the court adjourned only last Tuesday, so that the delay enables us to furnish you with a complete statement of the work for the year, whereas a statement rendered earlier would have been necessarily incomplete.

Very respectfully,

WM. H. POPE,
Assistant United States Attorney.

Hon. MIGUEL A. OTERO,
Governor of New Mexico, Santa Fe, N. Mex.

(One inclosure.)

SCHEDULE NO. 1.

List of cases in the New Mexico district decided by the Court of Private Land Claims during the year from October 1, 1898, up to and including October 1, 1899.

P. L. C. No.	Name of grant.	Acreage.		
		Claimed.	Confirmed.	Rejected.
71	Tres Alamosa	43,384.64		43,384.64
127	Town of Socorro	843,259.00		843,259.00
132	Reyes Pacheco	600.00		600.00
137	Santo Tomas de Iturbide	8,680.00	6,680.00	
138	Jose Manuel Sanchez Baca	4,340.00	4,340.00	
143	José Sutton	69,445.00		69,445.00
149	Fernando de Taos	1,000.00	1,000.00	
150-193	Refugio Colony	26,130.00	26,130.00	
151	Mesilla Colony	17,361.00	17,361.00	
152	Estancia	415,036.00		415,036.00
165-206	Abo Mine	16,000.00		16,000.00
178	Lo de Basquez	76,000.00		76,000.00
194	Santa Cruz	64,000.00	1,000.00	63,000.00
251	Diego de Belasco	5,000.00		5,000.00
256	Santo Toribio de Jemez	100,000.00		100,000.00
	Total	1,690,235.64	58,511.00	1,631,724.64

SCHEDULE NO. 2.

Surveys of grants approved in New Mexico district during the year ending October 1, 1899.

P.L.C. No.	Name of grant.	Acreage in survey.
6	Sebastian de Vargas	13,434.28
30	Piedra Lumbre	49,749.89
35	Jacona	6,952.84
51 106	Ranchos de Albuquerque	35,084.78
54	Galisteo	260.79
64	San Clemente	37,099.29
73	Pajarito	28,724.22
85	Salvador Gonzales	202.82
133	Pueblo of Laguna	17,328.91
214 243	Cieneguillo	3,202.79
217 258	Town of Bernalillo	3,404.67
	Total	195,445.28

SCHEDULE NO. 3.

Cases on docket of New Mexico district not finally disposed of; also status of each of said cases.

A.—PENDING FOR PRIMARY DETERMINATION.

P. L. C. No.	Name of grant.	Acreage claimed.	Remarks.
8	Town of Albuquerque	17,361	Remanded by Supreme Court (171 U. S., 685).
25 60 198	San Miguel del Bado	3,000	This represents estimated area of allotments. Claim to unallotted lands rejected (167 U. S., 278).
109	Conejos	2,500,000	Mostly in Colorado.
211	Santo Domingo de Cundiyo		No estimate possible under description given.
212	Pueblo de Quemado	288,000	
215	Bishops Ranch	600	
227	Jose Ignacio Alari		Do.
228	Roque Jacinto Jaramillo		Same; partially tried.
257 263	San Jose de Garcia		No estimate possible under description given.
260	Juan Joseph Moreno		Do.
262	Francisco Xavier Romero		Do.
270	Sitio de Navajo		Do.
	Total	2,808,961	

B.—CASES TRIED, SUBMITTED, AND UNDER ADVISEMENT BY THE COURT IN NEW MEXICO DISTRICT.

P. L. C. No.	Name of grant.	Acreage claimed.
144 252	San Pablo y Nacimiento	131,000
168	Santa Teresa	9,681
208 213	San Joaquin del Nacimiento	131,725
	Total	272,406

C.—CASES IN WHICH MOTIONS FOR REHEARING ARE PENDING IN NEW MEXICO DISTRICT.

P.L.C. No.	Name of grant.	Acreage claimed.	Mover.
165 206	Abo mine	16,000	Claimants.

D.—GRANTS PENDING ON SURVEY IN NEW MEXICO DISTRICT.

P.L.C. No.	Name of grant.	Estimated acreage confirmed.
5	Arroyo Hondo	20,171
15	Antonio Sedillo	86,606.21
16	Gijosa	15,540.97
17	Canada de Santa Clara	1,343.03
24	Dona Ana Bend	29,323
31	Luis Jaramillo	18,000
43	Polvadera	35,000
55	Cevilleta	285,431.36
67	Felipe Tafoya	4,340
70	Las Lagunitas	43,653.03
75	San Mateo Spring	4,340
116	Talaya Hill	500
122 148	Penasco Largo	665
157	El Ranchito	8,000
179	Juan Bautista Valdez	1,200
205	Canada de Cochiti	15,000
229	Angostura	2,319
267	Santa Rosa de Cubero	5,000
272	Miguel and Santiago Montoya	2,600
273	Lo de Padilla	27,000
	Total	606,082.60

Cases on docket of New Mexico district not finally disposed of, etc.—Continued.

E.—CASES ON APPEAL FROM NEW MEXICO DISTRICT.

P. L. C. No.	Name of grant.	Acreage claimed.	By whom appealed.
20	Nerio Antonio Montoya	3,633	Claimants.
36	Bairds Ranch	33,696	Do.
44 128 135 154 216	Las Animas	4,096,340	Do.
71	Tres Alamos	43,384.64	Do.
87	Sierra Mosca	115,200	United States.
91 183	Alamitos	2,500	Do.
99 153 233	Petaca	186,977	Do.
101	Ojo del Apache	47,743	Claimants.
108	Cebolla	27,000	United States.
111	Real de Dolores	17,361	Claimants.
112	Cuyamungue	5,000	United States.
130 182	San Jose Spring	100,000	Claimants.
132	Reyes Pacheco	600	Do.
134 184 185	Santo Domingo and San Felipe	20,000	Do.
142 204 236	Vallecito de Lobato	114,400	Do.
152	Estancia	415,036	Do.
173	Embudo	25,000	Do.
264	Bartolome Sanchez	5,000	United States.
269	Las Huertas	150,000	Claimants.
274	Antonio Gutierrez	12,000	United States.
275	Joaquin Sedillo	8,000	Do.
	Total	5,428,876.64	

F.—GRANTS CONFIRMED, BUT CONFIRMATION NOT YET FINAL.

P. L. C. No.	Name of grant.	Acreage confirmed.
74	Canon de Carnue	1,000
107	Canon de Chama	2,736
114	San Jose del Ensinal	12,207
130	Jose Manuel Sanchez Baca	4,340
137	Santo Tomas de Iturbide	6,680
149	Fernando de Taos	1,000
150 193	Refugio Colony	26,130
151	Mesilla Colony	17,361
194	Santa Cruz	1,000
	Total	72,454

RECAPITULATION.

Cases.	Number.	Acreage.
Not tried	12	2,808,961
Under advisement	8	272,406
On motion for rehearing	1	16,000
On survey	20	606,032.60
On appeal	21	5,428,876.64
Confirmation not final	9	72,454
Total pending in New Mexico district	66	9,204,730.24

CACTUS OF NEW MEXICO.

DEAR SIR: I have the honor to transmit herewith my report of the condition of the cattle industry in the Territory of New Mexico for the year ending June 30, 1899:

The winter of 1898–99 was phenomenally severe and destructive to stock throughout the entire Western portion of the Union. New Mexico, in common with the rest of the range country, suffered, but not to the extent experienced in those sections exposed to the full fury of the storms and blizzards sweeping down from Manitoba, unobstructed until the northern boundary of New Mexico is reached, where the mountains trending to the eastward deflect the storms in that direction and they develop into the much dreaded northers of Texas, thus protecting our stock from the rigors of climate that caused such havoc among range cattle during the winter last past. Those that perished were mostly old and weak cows with young calves, during the late and very dry spring following. Taking the Territory at large, the loss was about 7 per cent, varying in different sections owing to local conditions. All, however, were thin in flesh, and not in shape to be handled, and for this reason very little trading was done during the latter part of the year, and the movement of cattle out of New Mexico for any purpose was about 70,000 head less than it was during the same period in 1897.

Since the summer rains set in, making feed and water plenty, and assuring a supply for the balance of the year, their recuperation has been wonderful, and by the time the forage crops have been harvested, the steers being well graded and perfectly healthy, cattle will be in fine condition to be handled by feeders, the most successful of whom requiring for their purposes certain approved forms and qualities in their build and breeding that are known to give the most satisfactory results in the finished product, and accepting in their selection such only and none other, determined the most progressive of our cattlemen to supply the demand for the class required, and to that end have for some time past, and more noticeably during the present year, been introducing into their herds the very best strains of beef-producing blood to be found for that purpose. More than two-thirds of the steer holdings, which are nearly all ones and twos, have not yet been disposed of. They are well graded and will make feeders that will be profitable to handle, and are taking on flesh every day, grazing on the rich pastures our wonderful gramma grass affords, and which now just seeding, besides giving growth, has also a fattening quality almost equal to grain, and by the time corn is in hand for feeding will be in the best possible condition to be finished for the slaughter. Our cattlemen expect and are entitled to receive remunerative prices for their product, and the present outlook is that they will.

The attempt to control prices of cattle in this Territory earlier in the season by syndicate methods did not greatly prevail, and with the immense corn crop that is now assured the demand for cattle to consume it will be constant and strong.

The fact that a great shortage exists in that class of property is absolute, and cattlemen can confidently figure for an increased demand for their product for years to come, and will best subserve their own interest by producing that class of cattle which will give the best results when placed in the feed lot.

No losses of moment, except those before mentioned, caused by severe weather, have occurred. Fatal contagion is unknown.

The united and vigorous action by cattlemen in those sections where cover for vermin is most abundant have greatly reduced losses among stock heretofore caused by the preying of wolves on young calves, and inspectors from all portions of the Territory report that the depredations of the rustling element in burning brands and driving stolen cattle out of the Territory has (owing to the repressive measures taken against them through the operations of this board) been greatly reduced; many of them have been caught and convicted, and are now undergoing punishment, while a greater number have fled the country, fugitives from justice.

In my report for the year ending June 30, 1898, attention was called to the capabilities as a stock-grazing country of the great plains of eastern and southeastern New Mexico, which had been hitherto undeveloped, a gigantic trust now being promoted, the scope of which is to include the capital syndicate, holding in excess of 3,000,000 acres of land in Texas and extending over 100 miles along the eastern border of New Mexico, and also to include nearly all of this whole beforementioned section, some 25,000,000 acres of public land in New Mexico, now being rapidly filled up by a valuable class of frontier cattlemen and their families, each owning small bunches of stock and who are exploiting its natural resources as a stock-breeding region, developing water by means of wells and windmills for their horses and cattle and domestic purposes.

This scheme, if consummated, will be disastrous for all these people, as they will be overwhelmed with the herds turned loose on them, and must either abandon their holdings or submit to the terms made them by the trust, and it is clearly against public policy that this should be so, as a country occupied by people who make homes and pay their taxes are of more value to the State than are these grasping combinations, which notoriously and systematically avoid doing.

Reports from inspectors and leading cattlemen throughout the Territory are all to the effect that the present conditions of range and cattle are all that could be expected or desired; that the calf crop is much better than it seemed possible that it could be after the stress the exceptionally hard winter and dry spring put on the range stock; that a very decided improvement in the grade of young stock is shown throughout the Territory; that their owners being sure of their increased value and better protection are giving them closer and more intelligent attention than they have hitherto received.

From the most reliable data attainable there are in this Territory about 1,200,000 head of range cattle, out of which the steers are pretty closely sold. During the year ending June 30, 1899, 165,787 were sold and removed from the Territory—mostly steers to be matured and prepared for slaughter, the money value of which at current rates approximate $4,000,000. This, there is every reason to believe, will be increased by one-half at the end of the fiscal year, June 30, 1900.

All of which is respectfully submitted.

J. A. LA RUE,
Secretary of Cattle Board, New Mexico.

Governor MIGUEL A. OTERO,
Santa Fe, N. Mex.

REPORT OF SHEEP SANITARY BOARD.

SIR: We beg leave to submit to you the report of the sheep sanitary board of New Mexico for the year 1899;

Sheep growing is undoubtedly the principal industry of our Territory, and for the protection of this industry the sheep sanitary board was created by an act of the legislature of this Territory in 1897. Prior to this act the law in effect in regard to marking and branding and the illegal handling of sheep, and especially as to the treatment of the disease known as scab or scabies, was so defective as to be of practically but little value. During the first two years of the board's existence a great deal was accomplished in making growers become acquainted with the law in regard to dipping their sheep for scab, the necessary ingredients composing the dip, and the manner in which it should be used; and also in the creation of a corps of inspectors to enforce the statute and the rules and regulations of the board. The statute of 1897, however, was also found to be defective in quite a number of particulars, chief of which was inadequate provision for providing necessary funds with which to carry on the work contemplated. These defects have been remedied by the legislature of 1899, and the law is now in such shape that a great deal of good is expected to be accomplished during the next two years. Copies of this act of 1899 and of the rules and regulations of the board have been placed in the hands of every sheep grower in the Territory of whom the board has knowledge, both in English and Spanish.

During the first part of the present year a general drought prevailed throughout the Territory, and the dipping and quarantining of sheep were suspended, as their continuance during a time of scarcity of grass would certainly have caused an immense loss. Rains have, however, prevailed for some time, and a general order has been made by the board, a copy of which, either in Spanish or English, has been mailed to every sheep grower in the Territory, providing that all flocks shall be dipped before the 15th of September, and again before the 15th of December. This order the board will through its inspectors strictly enforce, and it is believed that in the spring of 1900 the sheep in this Territory will be quite clean of scab. A copy of that order is inclosed herewith.

The Department of Agriculture of the United States has recently promulgated a regulation providing that any sheep affected with scab or scabies, or sheep that have come in contact with those so affected, shall not be allowed shipment from one State or Territory into another unless they have first been dipped in one of two mixtures, the formulas for which are prescribed by the Department. Of the two formulas specified the lime and sulphur mixture is practically the same as that set out in the rules and regulations of the board, except that it is not quite as strong. The board has had a large number of copies of this regulation printed, both in English and Spanish, together with a statement of the board that it intends to assist the Department of Agriculture in every manner possible in enforcing this order, and with a further order of the board that all sheep shall be dipped as before stated herein, with one of the formulas prescribed by the Department of Agriculture. It is the intention of the board, and it has so instructed its inspectors, to see that all sheep growers comply with this regulation in every particular, and it is our desire to cooperate with the Department of Agriculture and assist in every manner in our power in destroying and curing the disease known as scab or scabies.

The natural adaptability and advantage of the Territory of New Mexico for sheep growing are unsurpassed by any country or section of country in the world. The only disease we have to contend with is scab, before referred to, foot rot and other diseases being unknown. With scab eliminated, as the board hopes and intends that it shall be, nothing can interfere with the rapid development of this industry to five or six times its present great magnitude, and the consequent increase of richness and prosperity to the Territory.

From what data we have, we can safely say we have between 4,500,000 and 5,000,000 of sheep, which produce on an average of not less than 5¼ to 6 pounds of wool each, and this average is constantly being increased by the grading up of our sheep by the importation of fine rams.

At the present time growers are rapidly having their marks recorded with the board, which give them exclusive right to the use of their mark and fire brand as recorded, and will enable the board through its inspectors to quickly identify and return stray or stolen sheep, two flocks of stray sheep having been by this means restored to their proper owners within the last three months. The cutting of a flock or the stealing of sheep will, under our statute in regard to defacing or mutilating marks, soon be a thing of the past. The board is cooperating with the authorities in seeing that all sheep thieves are prosecuted and an owner of sheep in this Territory will soon be as safe from any trouble of this nature as owners who keep their flocks in pastures in Eastern States.

The following is a list of our range and shipping inspectors at the present time: Crestino Griego, Casa Salazar; Francisco Montoya, Bernalillo; William McIntosh, Chilili; Ricardo Lewis, Albuquerque; H. M. Miller, Roswell; A. T. Gunther, Lower Penasco; C. C. Martin, Roswell; S. Floersheim, Springer; H. C. Abbott, Springer; Oscar Troy, Raton; W. Kelly, Catskill; C. W. Lewis, Eddy; J. M. Abercrombie, Anton Chico; Antonio Jose Aguilar, Anton Chico; Mariano Montoya, Revuelto; John Coleman, Liberty; David Crespin, Los Colonias; L. C. Churchill, Puerto de Luna; M. F. Davidson, Richardson; L. B. Walters, Lincoln; Epimenio Martinez, Wagonmound; G. W. Bond, Wagonmound; S. E. Ruckner, Watrous; Pedro Aguilar, Tularosa; T. J. Key, Tierra Amarilla; Sixto Chavez, El Rito; Manuel Gomez, Lumberton; Charles Pinkney, Farmington; Rafael Gallegos, Las Vegas; Carlos Martinez, Chaparito; J. E. Whitmore, Gallinas Springs; Nicolas T. Cordova, Las Vegas; Fecundo Pino, Galisteo; Andres C. de Baca, Romero; John Pflueger, Lamay; Frank Bond, Espanola; Melcor Silva, Monticello; B. F. Parks, Lave Valley; Manuel S. Pino, Datil; H. A. Brachvogel, Cienega; Matias Contreras, Lajoya; J. S. McTavish, Magdalena; Albert G. Muller, Taos; Juan A. Bernal, Cerro; T. A. Gray, Clayton; Rafael Tixier, Bueyeros; J. C. Martinez, Folsom; Sylvestre Miribal, San Rafael; Jose Salazar, Peralta; Antonio A. Salas, Pinos Wells.

The sheep sanitary board as at present constituted consists of Solomon Luna, president, Los Lunas; W. S. Prager, vice-president, Roswell; and Harry W. Kelly, Las Vegas, N. Mex., and Harry F. Lee, secretary, with office of board at Albuquerque, N. Mex.

IMPORTANT ORDER.

ALBUQUERQUE, N. MEX., *August 19, 1899.*

To the Sheep Growers of the Territory of New Mexico:

You are hereby notified that all sheep which have not been dipped since the 1st of June, 1899, must be dipped between now and the 15th of September, using one of the formulas prescribed by the United States Government as set out in the regulations below, or with the lime and sulphur formula heretofore prescribed by this board in its rules and regulations. You are also notified that all sheep will be required to be dipped again after the 15th of October and before the 15th of December, 1899.

Any sheep owner who fails or neglects to comply with this order will be subject to a fine of 1 cent for each and every head not so dipped, and the respective inspectors for the various counties have been ordered to strictly enforce this order and to collect such fines, and to have all sheep not so dipped as above ordered dipped at owner's expense. And in event of any flock still showing scab after having been dipped twice, the dipping must be continued until the scab is entirely cured.

The circular from the United States Department is as follows:

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., July 20, 1899.

Whereas the shipment of live stock affected with any contagious, infectious, or communicable disease from one State or Territory to another, or from any State into the District of Columbia, or from the District into any State, is prohibited by the act of Congress approved May 29, 1884; and

Whereas the contagious disease of sheep known as scabies, or scab, exists in many parts of the United States, due notice of which was given in the Department order of June 18, 1897; and

Whereas some of the preparations in which diseased sheep have been dipped by owners and stock-yard companies with the object of destroying the contagion and making legal the shipment of said sheep in interstate trade have proved inefficient, and said sheep have disseminated the contagion notwithstanding such treatment; and

Whereas the damage and losses from scabies in sheep have been in some sections very heavy and discouraging to those engaged in the sheep industry:

It is ordered that from and after August 10, 1899, no sheep affected with scabies, and no sheep which have been in contact with others so affected, shall be allowed shipment from one State or Territory to another, or from any State into the District of Columbia, or from the District into any State, unless said sheep shall have first been dipped in a mixture approved by this Department.

The dips now approved are—

1. The tobacco and sulphur dip, made with sufficient extract of tobacco to give a mixture not containing less than five one-hundredths of 1 per cent of nicotine and 2 per cent flowers of sulphur.
2. The lime and sulphur dip, made with 8 pounds of unslaked lime and 24 pounds of flowers of sulphur to 100 gallons of water. The lime and sulphur should be boiled together for not less than two hours, and all sediment allowed to subside before the liquid is placed in the dipping vat.

The owner of the sheep is privileged to choose which one of the above-mentioned dips shall be used for his animals. The Department will instruct inspectors to enforce due care in dipping sheep, but it assumes no responsibility for loss or damage to such animals, and persons who wish to avoid any risks that may be incident to dipping at the stock yards should see that their sheep are free from disease before they are shipped to market.

J. H. BRIGHAM, *Acting Secretary.*

The above regulation has recently been sent out by the United States and is now being strictly enforced, and all persons who fail to dip their sheep in exact accordance with the above regulation and in every manner fully comply therewith make themselves liable to the United States. Sheep men are notified and warned that they must strictly comply with the above regulations or they will be liable for damages.

SOLOMON LUNA,
President Sheep Sanitary Board, New Mexico.
HARRY F. LEE,
Secretary, Albuquerque, N. Mex.

Hon. M. A. OTERO,
Governor of New Mexico.

SHEEP.

That "the hoof of the sheep is golden" has been demonstrated conclusively in New Mexico. Not even Australia, renowned the world over as the sheep-grower's paradise, can surpass New Mexico in its advantages as an ideal sheep breeding and wool growing section. The master hand of nature lavishly supplied our Territory with everything requisite for the successful pursuit of the sheep and wool industry. Nature endowed her with a peerless climate, neither hot nor cold, yet overflowing with sunshine from January to December, producing an atmosphere pure, ozone laden, and invigorating.

Her grazing lands extend from the plains and mesas to the top of the mountains, 10,000 feet high and bountifully covered with nature's choicest nourishment—gramma grass—which retains to a surprising degree its succulence and nutrition, even when only cured by wind and weather where it grew, with no assistance from mankind.

New Mexico's natural adaptability to sheep raising and wool growing was recognized by the Spaniards when they settled in this section about three hundred years ago, and they introduced large numbers of Merino sheep, which soon became the principal support of the people, furnishing them with food and raiment. Since that time this industry has a prominent position in the Territory and it is to-day, as it has been for many years past, the most important and profitable in New Mexico. At this time there are owned in the Territory of New Mexico over 4,000,000 head of sheep, including the lambs grown this year, and, with the exception of one State possessing many similar advantages, our Territory towers above all other States and Territories in the number of sheep owned. The original stock was of the Spanish Merino type of sheep, and from lack of fine-bred rams to keep up and improve the strain they gradually deteriorated in character until they became a class unto themselves, displaying more of the characteristics of wild than of domestic animals. This trait developed in these sheep an ability to hunt for their food and enable them to subsist upon the scanty herbage and to live without water for many days, whenever conditions demanded or necessitated such modes of living. To-day, though improved by the best blooded stock to be found, they still possess these desirable characteristics.

The ewes make splendid mothers, caring for their lambs in a manner unequaled by any other breed of sheep and fearlessly defending them against attack by carnivorous wild animals. Their fecundity is also remarkable, and there is always a high percentage of lambs born, running up, in some flocks, over 100 per cent. Possessing such qualities, the increase and growth of the flocks is very rapid.

With their inherited and acquired knowledge of the sheep business, it would be difficult to find in any other section of the country a class of growers who can excel the New Mexican sheep men in the intelligent and economical management of their herds. In the improvement of their flocks they have experimented with different breeds, and the results have convinced our best sheep men that, for the conditions prevailing in New Mexico, the American Merino (the Delaine or Rambouillet types) is superior to all other breeds tried, and for the purpose of raising the standard of their sheep they have imported many fine-bred rams from Vermont, Pennsylvania, Ohio, and Michigan, for some of which as high as $100 per head was paid. The fine types are peculiarly suited to New Mexico, not simply because they are wool and mutton sheep, but for the reason that sheep in our Territory are grazed upon open ranges, and it is therefore essential that the sheep should possess the quality of herding together, and this is a leading trait of the Merino. Some of the long-wooled mutton breeds have been tried, but as these sheep will not stay "bunched" while feeding it is very difficult to herd on the open ranges, and their decided tendency to wander off singly demands unceasing vigilance as well as hard and tiresome work on the part of the herders to hold them together, while the danger of loss from this cause is always serious, and these sheep are not well suited, therefore, for open-range grazing.

The Rambouillets, however, being of pure Merino descent, have inherited the flocking qualities of their ancestors and they are a desirable class for range work. They are free from wrinkles, the wool produced is the finest quality, and they make excellent sheep for mutton purposes. We do not know whether it is due to the climate, to the gramma grass, or to the breeding, yet the fact remains that the mutton from New Mexico sheep possesses a sweetness, tenderness, and delicacy of flavor that places them easily in the front rank as choice mutton sheep. These qualities are so well known that "feeders" prefer them to any others, and the demand for them for feeding pens is so great that the growers are only partially able to supply it. Nearly a million head of sheep are annually taken to Colorado, Nebraska, Kansas, Missouri, and Illinois to be fattened for market.

Fort Collins, Colo., received large numbers of them, and the high price the feeders obtain for their New Mexico sheep demonstrates their superiority as mutton producers. The sheep make splendid feeders, as they will eagerly and greedily feed upon alfalfa, oats, corn, wheat screenings, etc., and take on weight very rapidly. Their faculty for adapting themselves to existing conditions makes them very desirable animals for feeders, as they are as much at home in the pens as they are upon the ranges. Sheep are also being fattened around Eddy, N. Mex., upon the sugar-beet pulp, and the sugar factory there is now able to advantageously dispose of what was formerly a waste product. Results from pulp feeding have been very satisfactory, particularly in the case of old ewes. The pulp furnishes them with an abundant supply of rich milk, and they are thus enabled to raise strong, well-developed lambs.

No business offers more profitable returns than does the sheep-raising and wool-growing business of New Mexico at the present time. The cost of running the sheep for a year is about 30 cents per head, which covers the expense of herding, lambing, shearing, dipping, taxes, etc. The cost of shearing amounts to 2½ to 4 cents per head, according to the class of sheep shorn. The flocks are usually run in bands of 3,000 to 5,000. The people of New Mexico are unsurpassed in the management of sheep herds. It is no unusual thing for them to take sheep on shares, agreeing to return double the number of young and healthy ewes at the end of five years, with a considerable amount of wool annually; and often, after the five years, the party, on repaying, has double or treble the original number left for himself. The flocks require three men, or two men and a boy, and two or three dogs, and, when the same man has three or more flocks, another man of experience as overseer. Each flock also has a donkey and camp equipage, which, with the rations, are carried on the donkey. The sheep are grazed from place to place within the range. The men and dogs constantly remain with the sheep during the whole year.

A few years ago sheep could be bought for 75 cents per head, and even at that price there were few buyers. To-day ewes are selling freely from $3 to $4 per head; yearlings (wethers), $2.50 to $2.75; two years and up (wethers), $3 to $3.25, and six months' old lambs from $1.75 to $2.25 per head.

One of the prominent sheep men of New Mexico, who started in business about twenty years ago with practically no capital, has just disposed of his business and finds himself worth over $100,000, notwithstanding the fact that he, in common with the other sheep men, lost money for several years during the agitation for and the life of the obnoxious Wilson bill. The following statement will briefly show about what can be done in the sheep and wool industry in the Territory of New Mexico. This is the way it works:

4,000 ewes, at $3 per head	$12,000	
Expenses for one year, say, 50 cents per head	2,000	
Total cost		$14,000

At the end of one year you have:

3,800 ewes (5 per cent loss allowed), at $3	$11,400	
21,000 pounds of wool, at 12 cents	2,520	
3,100 lambs, at $2	6,200	
		20,120
Profit		6,120

Fifty per cent on the original outlay is a handsome return from any enterprise, and we believe we do not err when we reiterate that the people engaged in sheep husbandry in New Mexico are following the most profitable business in the West to-day, and as long as a protective tariff guards their interests the prospects and outlook for the future are certainly very bright for the sheep men, and the prosperity of the Territory is in a very large measure commensurate with the success enjoyed by those who are devoting their capital, brains, and energies to this important industry.

WOOL.

The wool clip of the Territory will amount to fully 18,000,000 pounds this year. A few years ago the average weight per fleece was very low, but now, owing to improved breeding, it will amount to a little over 5 pounds per head. The wool grown in New Mexico is of a diversified character, scaling from the finest Delaine-Merino to the coarsest carpet. The improvement in the grade of the wools has been coincident with the improvement in the sheep, and the growers are still exerting themselves in the laudable ambition of bringing their flocks and wool up to a still higher standard of quality. Many years are consumed in breeding the coarse-wooled stock up to the desired Merino plane, and so to-day, while clips are shorn that will compare favorably with any in the United States, the majority of them are not uniform in grade, but will contain fleeces producing sorts running from fine to carpet wool. The lambs of each succeeding year produce a finer grade of wool, and in time, if the growers continue to use fine Merino rams, the wool clip of New Mexico will be composed of fleeces uniform in grade and of choice character.

There is an ever-increasing scarcity of fine wool in the world, due to the crossing of the fine-wooled flocks with the large-framed, coarse, long-wooled breeds. The tendency to breed exclusively for a large carcass has amounted almost to a craze all over the globe, from which the New Mexican growers have been comparatively free. They have again displayed their intelligence by directing their efforts solely to the production of fine-wooled mutton sheep, and the certain advance of fine wools to a high point will amply reward them for their foresight and labors.

The following tables, furnished by one of the large wool-scouring plants situated at Las Vegas, indicate the diversity in the wool clips grown in the Territory:

	Per cent.
A clip of 40,000 pounds of grease wool yielded:	
Scoured fine wool	65
Scoured fine medium	35
A clip of 90,000 grease pounds yielded:	
Scoured fine and fine medium	97
Quarter-blood	2
Blanket	1
A clip of 77,000 grease pounds yielded:	
Scoured fine and fine medium	90
Quarter-blood	9
Blanket	1
A clip of 31,000 grease pounds yielded:	
Scoured fine medium	2
Three-eighths	59
Quarter-blood	17
Blanket	18
Carpet	4
A clip of 20,000 grease pounds yielded:	
Scoured three-eighths	43
Quarter-blood	31
Blanket	16
Carpet	10

There are many clips that will show a much greater percentage of the low sorts (blanket and carpet) than is indicated in the tables quoted above.

The advance in the price of wool has kept step with that of the sheep. In 1896, when sheep were only worth 75 cents per head, the price of wool touched its lowest point. Eastern commission houses even refused to make any advance on grease wool, and owners were offered 3 to 5 cents per pound for the fine clips. To-day these wools are worth 11½ to 14 cents per pound, and the importing price of wool has not yet been reached by 2 to 3 cents per pound. Light shrinking wools sold as high as 17½ cents last fall; all of which tends to prove that a protective tariff on wool is neither a myth nor a fallacy, but is essential and beneficial to the wool industry of New Mexico, as elsewhere in the United States.

The production of such a vast quantity of wool has brought within our borders another important industry, the business of scouring wool, as well as of sorting it and otherwise preparing it for the manufacturers' use. Three large plants have been erected at Las Vegas. There is also one located at Albuquerque. There is in addition to these a scouring plant at Trinidad, Colo., across the New Mexican line, which handles large quantities of wool grown in northern and northeastern New Mexico. The town of Eddy is at present contemplating the erection of a wool-scouring mill, and if the water proves suitable for this business they hope to have it running by next wool season.

These scouring mills have been the prominent factor in securing for the growers full prices for their clips. The benefits they confer upon the sheep men are numerous. Their presence and anxiety to secure wool has developed a competition among buyers that has reacted to the growers' benefit. The scouring of wool at home results in a big saving in freight charges, as all the grease and sand carried by the wool is eliminated, and transportation charges are only paid on clean wool. They are a school for the growers, as they teach them the shrinkage of the wool and the percentage of the various sorts taken from it; and, as all wool is bought and sold on a scoured basis, it is very necessary that they should possess this information, as it enables them to dispose of their products intelligently and to good advantage. If wool is consigned to an Eastern commission house to be sold, the charges are less for handling scoured wool than for grease wool, the growers have more money to spend at home, and their support of the scouring mills keeps employed in New Mexico much capital and many hands. The benefits of scouring mills to a community are fully illustrated in the case of Las Vegas, which is to-day the best wool market in the Southwest, and wool is shipped to that point from the most distant parts of the Territory, the growers being attracted there by its excellent outlet for wool. If the grower sells his wool to an Eastern buyer in the grease he has to pay the freight as well as the charge for scouring the wool, as he well knows, and if he can save the money paid for hauling the grease and dirt in his wool, it is certainly to his interest to do so. It is also better for the Territory to have this work done here, as it encourages an important industry here and adds to the wealth of New Mexico. That the conversion of the wool just as it comes from the sheep's back into the condition required by the manufacturers has been remunerative to the growers is demonstrated by the following letters, which were received, with numerous others of similar import, by one of the leading scouring mills at Las Vegas, N. Mex.:

PUERTO DE LUNA, N. MEX., *January 17, 1898.*

——— ———:

In reply to your letter of the 10th instant, I have to say that I want you to scour my wool, as you have done for many years.

I have learned by experience that the reputation of your company in the wool market of the East is such that wool sorted and scoured by it sells for the highest market price; and in regard to my wool, when you scour it, and I see the market quotations for scoured wools, I know exactly what it is worth, and I believe the owners of fine wool can realize more by scouring than selling in the grease. For instance, two years ago, when you scoured it, I realized, after all expenses had been paid, $1,668.48 over the highest price I was offered for it in the grease.

I often hear it asserted that in New Mexico and Arizona we can not raise such wool as is produced in Montana and Northern States, and it may be true; but, nevertheless, I have received for every clip you have scoured the past six years the same price, and I think I owe something to your company for the thorough manner it was sorted, scoured, and put up, and I am going to stay with you.

Yours, truly,

J. G. CLANCEY.

P. S.—I hope to have over 100,000 pounds this coming clip.

CHILILI, N. MEX., *January 17, 1898.*

——— ———:

We are very well satisfied with the manner in which you handled our clip last year and the price you got for us. It is our intention to place this spring's clip, which will be in the neighborhood of 200,000 pounds, in your hands again, as we believe all fine wools should be handled through a scouring mill, as there is a big saving in freight and in the commission charged for selling the wool. We are convinced that we can get more money from our clip in this manner than if it is handled or disposed of in any other way.

Yours, truly, MCINTOSH & MCGILLIVRAY.

The sheep business of New Mexico has also resulted in the establishment of another enterprise at home, viz, that of wool pulling and tanning. There are located at Las Vegas two wool-pulling plants, one of which is also engaged in the tanning of leather. The processes through which a sheep pelt goes from the time it is taken off the carcass until it is converted into leather are many and interesting. When the pelts are received by the puller they are soaked in tanks filled with clear, soft water. When the skin is thoroughly softened, the water is drained off, usually in hydro-extractors. If what is known as the sweating process is used, the pelts are then suspended from the tenterhooks in closed rooms called the sweat houses. Steam is introduced, and the chemical action produced by the heat upon the skin causes the wool to be easily removed from the skin after having been sweated for about forty-eight hours. The use of depilatories is largely supplanting the sweating method. In this case the flesh side of the pelt is painted with a solution of the depilatory. The pelt is folded and laid away for from five to twelve hours, according to the season of the year and the strength of solution, after which the wool can be pulled from the skin with great ease, the depilatory having destroyed or eaten the roots of the wool fibers. As the pullers remove the wool they sort it into different classes belonging to pulled wool, which are technically known as extras, fine super, A super, B super, and C super. The pelt from which the wool has been taken is now termed the "slat," and it is then put through the process of liming, beaming, bating, or drenching. At this stage, if the puller is also a tanner, the slat goes to the tanning department, whence it finally emerges as leather. There are about twenty different processes for tanning slats, the four principal ones being the chrome, the oil, the bark, and the alum. If the puller does not desire to tan the slats, he proceeds to pickle them, in which state they can be kept for a long period, or they may be sold to those who tan the slats only and do not engage in the preliminary work of pulling. The work of pickling is performed in order to preserve the slats in good condition for tanning when they are not tanned immediately after the bating process.

The location of these plants within the Territory supplies the growers with a splendid home market, just as the wool-scouring mills furnish him with an unsurpassed outlet for his wool clip. New Mexico pelts have an enviable reputation for their leather-making qualities. Eastern tanners prefer them to all others on account of their fineness of grain and toughness, and they are largely used in the production of imitation morocco and other leathers, as well as for glove stock, for which they are eminently suited. If the butchers and herders will exercise proper care in removing the pelt from the carcass and curing it afterwards, they can obtain fancy prices for them. Pullers and tanners have complained at times that excellent skins have been ruined for leather purposes by reason of careless skinning and handling in the primal stages, an objection that should and can be easily remedied by the exercise of intelligence and care on the part of those who skin the animals and prepare the pelts for shipment to the pullers.

The wool and sheep industry continues to be the most important in the Territory, and the flock masters are in a more prosperous condition than they have experienced for many years. The past winter and spring have not been surpassed in severity for the last fifteen years, and caused some losses among the flocks, besides reducing the lamb crop below the normal percentage, but the high prices which sheep and wool have commanded this season have obliterated the effects of the early losses, and the industry is one of the most profitable in the country. Its healthy and prosperous condition is evidenced by the number of people who are purchasing sheep and ranches in different sections of the Territory. The excellent demand for New Mexican sheep for "feeders" tends to prevent overproduction, and the number of sheep in New Mexico to-day is about the same as at this time last year, viz, fully 4,000,000. Wool brought good prices this season. In fact, the amount netted from the sale of their clips paid the growers a handsome dividend on the capital invested in their business, regardless of the value of the lamb crop. Wools sold for 12 to 15 cents per pound. This was equal to 60 cents to $1.25 per head, according to the weight of the fleeces, and as 30 to 60 cents per head will cover all the expenses incurred in the sheep business for one year, half of the wool clip was clear profit to the grower.

From the statistics of the wool production of New Mexico, by parties who are thoroughly acquainted with the wool markets of that Territory, the following table is compiled of the amounts handled by the several places in the Territory direct from first hands:

	Pounds.
Las Vegas	6,000,000
Albuquerque	2,500,000
Chama, Espanola, Terra Amarilla, Tres Piedras, and Antonita district	2,500,000
Clayton	1,500,000
Wagon Mound	1,000,000
Springer	1,000,000
Eddy and Roswell and Pecos Valley points	1,000,000
Belen	750,000
Santa Fe	250,000
Watrous	100,000
Balance of Territory	2,000,000
Total	18,100,000

It will be observed that Las Vegas heads the list with 6,000,000 pounds. In addition to this, between 3,000,000 and 4,000,000 pounds of the wool received from first hands at other places is handled by Las Vegas dealers, or through them, making the total amount of wool handled by Las Vegas merchants between 9,000,000 and 10,000,000 pounds, valued at over $1,250,000. Of the 2,500,000 placed to Albuquerque's credit, over half comes from first hands direct to Albuquerque, the balance coming in from points on the Atlantic and Pacific. In addition to this, Albuquerque dealers handle between 1,000,000 and 2,000,000 pounds from other points, so that the total amount that can be placed to the credit of Albuquerque dealers and commission men as handling would amount to perhaps 4,000,000 pounds.

A good deal of wool was handled at Chama this season, the amount being estimated at about 1,500,000 pounds. There is very little of it held back in Rio Arriba County. Prices were satisfactory. Upon the whole, people of the county of Rio Arriba have done very well during the past season, and are contented and happy.

GREAT MONEY EASILY MADE IN CATTLE AND SHEEP BUSINESS.

A number of lines of business in which large gains are now realized have been mentioned in different parts of this report. And what many are now doing many more could do, for one beauty about New Mexico is that an investment here is not simply one nail driving out another. Every department of industry and enterprise has abundant room for many additions, the newcomers doing as well as the old, and the old suffering no competition from the new. Were the stock investments of New Mexico doubled in value by the addition of new ranges and new animals, the old interests would not be damaged a particle, since the return on investment in this industry is determined by the condition throughout the nation. So with the production of wool and hides and pelts. For those having the means and somewhat of experience, the cattle or sheep business offers a field of almost limitless opportunity and vast profit, either in the purchase of present ranges or the development of others, should breeding be proposed; or in the purchase of lands and development of new ranches, should feeding and fattening be contemplated.

These enterprises require, of course, a considerable outlay of money in the purchases of stock and ranches, though the ranges are practically free, the location or development of water placing the surrounding unwatered lands at the use of the locator. But similar stock industries can not be entered upon elsewhere and to the same extent with less money, nor will the returns elsewhere be so satisfactory. Because of winter mildness, maintenance is less costly, and because of climatic excellence losses are fewer and increase is at a much larger ratio. The stockbreeders' Elysian fields lie in New Mexico.

GEOLOGICAL ASSOCIATIONS IN NEW MEXICO MINING CAMPS.

SIR: In accordance with your request, I transmit herewith a short account of the geological associations prevailing in a number of the mining camps in the Territory. While the data incorporated in this report are not all strictly of an economic nature, it is hoped that they may prove of practical service in the hands of intelligent mining men by aiding as much in the avoidance of unnecessary expenditure as in the direct exploiting of the mines. These data are derived from the work of the geological survey of the University of New Mexico, and form a part of the material to be published in extenso in the second volume of the report of that survey now in course of preparation.

Notes on economic geology of New Mexico.—It may be premised that the Territory of New Mexico is of so enormous extent that it follows as a natural consequence that its geological and economic relations differ in its different portions so entirely that the work done in any given area is no sufficient guide for work in other portions. It is necessary to carry the minute study of the formations into every section of the Territory before reliable generalizations can be formed.

The work has proceeded far enough, however, to enable us to deduce a number of general principles, which if they had been recognized a few years ago would have saved an enormous sum to the Territory, and would have done much to have conserved her good name as a mining country.

In spite of the diversity in details, the Territory is sufficiently homogeneous geologically to enable us to treat it as one geologic terraine. Most characteristic of the geological features of the section is its newness. For the most part the rocks which cover its surface and determine its topographical and economic character date from recent geological ages. The latest of the great geological cataclysms, the descent of the glacial ice sheet, has scarcely affected the Territory directly in any part. It is true that there are evidences of local glaciers in a few places and that the valley of the Rio Grande is, in its upper courses, to some extent filled with material that may have been transported by the floods from the melting ice of the continental glaciers farther north, but otherwise the Territory is innocent of the wonderful glacial phenomena of the Northern States. The effect of this escape from the educating effect of the "great, cold, continental sorrow" is discoverable in a crudeness of topography, an angularity of outline, and unretentiveness of soil that has a very important effect on the economic development of the Territory. As an acute observer said many years ago, Arizona and New Mexico are the best drained parts of the United States. The effect of the ice sheet was to pulverize impact and to fill with impervious basins lined with clay the vast thickness of soil it produced. In New Mexico the soils are either due to the disintegration of the rocks in place or to the collection of débris carried by streams. This fact, in connection with the loose and friable texture of the recent rocks so largely making up the surface deposits, tends greatly to facilitate the escape of the waters from precipitation and from incoming streams. Nor is this simply a curious fact, for it is fraught with tremendous import. In various parts of the Territory, with similar climatic conditions, entirely different crops are demanded. Potatoes will grow in one canyon and not on the opposite side of the same range or in an adjacent canyon. This lack of homogeneity in the soils of the Territory is seen equally in the nature of the plants naturally growing in different places at the same altitude, and makes necessary a minute study of the soils from a geological point of view all over the Territory.

The climate, in like manner, reflects the soil conditions. No one has sufficiently emphasized the effect of soil in determining the climate of New Mexico. It may be confidently stated that there is enough rainfall to insure the growth of crops in many if not most parts of the Territory without irrigation if only the soil were sufficiently retentive to hold and utilize the precipitation. To this may be added the well-nigh demonstrated probability that if the soil were more retentive, this in itself would tend to increase and distribute the rainfall. In this fact there is hope, for if sufficient pains are taken to preserve and extend our forest areas and to increase the cultivated lands, we may hope for a gradual modification of the climate and a tempering of the violence of the storms and greater distribution of precipitation. It has been possible to show that the local rains of this Territory are extremely sensitive to the radiant heat from the surface beneath, so that a bare extent of sand will actually ward off rains which fall about it.

The oldest rocks in the Territory known to the writer are granites and gneisses, which are generally only visible where the overlying rocks have been removed by erosion or faulting. Large areas of granitic rocks, however, are exposed in the northern part of the Territory, and in them are found quarries of mica, while they afford a good association for the metals when penetrated by basic rocks of later date.

These granites are exposed in the ranges bordering the Rio Grande south of Santa Fe, where they lie unconformably below a quartzite of varying thickness, and this, in turn, supports the great Carboniferous limestone series, which here attains a thickness of over 700 feet. The age of the granite has been a matter of controversy, but it is certain that it is metamorphic and represents some formation older than the Subcarboniferous. Beds of metamorphic limestone have been found in the midst of the granite.

The contact between the Carboniferous limestone and the quartzite (the place of which is sometimes taken by other modifications, such as a coarse conglomerate with pebbles from the underlying granite) is quite frequently impregnated with iron, and when this is the case the iron often forms a precipitant for copper. Such accumulations occur in the mountains of Postcarboniferous age along the Rio Grande Valley in the Oscuro, San Andres, Organ, Caballo, and other ranges. Veins in the limestone admit solutions of various substances which penetrate to the quartzite or granite, and at that point, in the presence of air and water, the iron reduces or precipitates the copper. Thus have been formed local deposits which are richest on the exposed surfaces and make a fine showing. The ore is of chalcocite, cuprite, melaconite, malachite, and azurite, and is often very rich. All these deposits are, however, fickle and superficial, and, while they may reward small capital, are rarely of sufficient extent to warrant great expenditure.

The source of much of the copper in the Territory is, however, to be found in a formation above the Carboniferous and only separated from it by the obscurely-defined Permean formation (which latter consists of limestones, shales, and sandstones assimilating with the Carboniferous below, and in some cases apparently passing by gradations into the Jura-Triassic). This formation (the Jura-Trias) is composed for the most part of red or maroon shales and sandstones, often attaining great thickness, but in central New Mexico usually limited to a few hundred feet. Although nearly devoid of fossils, this sandstone frequently contains large trunks of trees as well as leaves and branches which, in some cases, are fully silicified, while in others they are changed to coal, and in still others the carbon has been substituted for by copper. The latter process is easily intelligible chemically if water charged with copper in solution were present during the decomposition of the organic matter. These beds of vegetable matter accumulated in shallows of the ancient sea and form lens-shaped masses usually of no great extent. In some cases large trunks are fully transformed to copper ore, while in others only part of such a trunk is so transformed, In still other cases nodes or concretions of copper accumulate in shales of this series. There has usually been surprisingly little alteration in the copper in these shales, and the nodules then consist of pure copper glance or a mixture of the glance with iron. The Jura-Triassic sandstones are widely distributed and are easily recognized by the red color, and the occurrence of copper in the beds is almost as widespread as that of the formation. Such deposits occur at different places along the east side of the Rio Grande from the San Andres Mountains northward and are continued into the Mora region, also in the Jurassic deposits west of the Cochiti and thence westward. In some cases the strata are tilted and the alternate soft and hard layers leave long parallel ridges of the indurated sandstone that have been mistaken for igneous dikes and have led to an entirely wrong idea of the nature of the ore bodies.

The following formation is the Cretaceous, which is represented by a vast series of yellowish and gray shales and sandstones. The latter often afford available building stone, while the shales are in a number of widely-separated basins interstratified with coal seams. Above the Cretaceous or unconformably deposited about its eroded and faulted edges are the marls, clays, and sandstones of the Tertiary age. In these beds there are few elements of economic importance aside from clay for brick. The Tertiary beds tend to be strongly modified by proximity to other older rocks, or rather they are composed of the débris from the destruction of their predecessors, and accordingly assimilate in composition and appearance to the parent rock. Thus, in a region underlaid by Jurassic rock, the Tertiary may assume the same red color, and in the vicinity of the great lava flows the materials of the Tertiary are largely or wholly derived from the products of eruption from these craters, as may be seen in the vicinity of the tufa flows of the Cochiti. Material for excellent brick has been found in the dark blue shales of the Cretaceous, as at Las Vegas, but for the most part the fictile clays must be sought in the products of river erosion. A curious exception is afforded by certain Carboniferous shales and fire clays east of Socorro and in the product of alteration of andesite and other basic rocks, where they have been covered by trachytes and other acid rocks. The reaction between these rocks in favorable circumstances produces a kaolinization of the feldspar and a removal of other ingredients, leaving fine white china clay as a result. Such beds are to be seen in Socorro Mountain and elsewhere.

The most important storehouses of the precious metals are found in the igneous or volcanic rocks of the Territory. From this list must be eliminated the last and most conspicuous class of such eruptives—the basalt flows of Post-Tertiary age. A very large part of the Territory is dotted with craters, from which the lava sheets have spread for many miles. This basalt is later than, and so covers, rocks of all ages, except the deposits of the rivers. Where the underlying soft rocks have been undermined by percolating water, as has often occurred, the sheet breaks down irregularly under its own weight and produces what is aptly called "mal pais," or bad land. No substance of economic importance has been found in these basalts, though they are rich in iron, and the heat evolved by the thin sheets has been insufficient to be instrumental in the segregation of ores from other rocks.

The remaining igneous rocks may be grouped into three general classes of intrusives—the andesite series, the trachyte series, and the rhyolite series. The first and oldest of these is the class of basic eruptives, mostly dark-bluish or brown rocks, with white crystals of feldspars mottling the homogeneous background, and, when these crystals are conspicuous enough, constituting what the miners call "bird's-eye porphyry." This rock is one of the most general sources of gold—that is, it almost constantly forms the country rock or is in some way associated with the gold ores. It is true that the andesite is not in itself a suitable rock in which to seek appreciable quantities of the precious metals, but when it has been greatly influenced by the quartziferous later intrusives, so that it is shot through and through by dikes of felsite or quartz, or where flows of these other rocks are interbedded with the andesite, the segregation of more or less of gold and silver may be said to be the rule. This is a fact that will be of the greatest possible help to the prospector as well as the mine reporter.

It is not always easy for the untrained eye to distinguish the andesite from other dark rocks with porphyritic inclusions, and there are light-colored and tufaceous phases of the andesite. Sometimes even the trained petrographer will be deceived or in doubt till he has the opportunity to use the microscope. The geological survey of the university offers its services in making such determinations, and it is well supplied with the necessary instruments.

If we were to name the mining camps where the country rock of the gold dikes is formed by the old andesite series of eruptives, nearly all the important mining camps would be included. The Mogollons, for example, afford illustrations of central andesite mountains covered and penetrated by later flows of trachyte and other acid eruptives. The same is true of the Black Range and of the Magdalenas. The Cochiti is a beautiful illustration of an isolated group of andesite peaks surrounded by a girdle of trachyte and obsidian eruptives. Here the form of the later eruptive is scoriaceous, and the beds of tufa cover vast areas and no doubt protect many rich lodes from the destroying hand of the miner. In southern Colorado we have traced the applicability of the same law. The Cerrillos group has but a small core of andesite in the midst of later material, but forms, with the series of mountains to the south, a special case.

The Otiz Mountains, for example, is chiefly composed of a remarkable rock of a granitoid appearance, which proves to be a rare species of ægerine syenite, but intermediate between an acid and basic rock. This extends in vast sheets over the Cerrillos coal fields, and in some cases interpenetrates the coal series, and has been the agent in the transformation of part of the lignite into a fine quality of anthracite. The radiating dikes of the same material form conspicuous landmarks in this region. The mines in the Ortiz are due to quartz intrusions in this material, which plays the same part that andesite does in other cases, and, moreover, it is intimately associated in many places with the true andesite. The southern part of the Cerrillos Mountains is made up largely of the same syenite, which has a decidedly greenish color in typical specimens, but there are also dikes and bosses of andesite immersed in the later flows. The syenite in this case has been intimately blended with fragments or great masses of the sedimentary rocks through which it has broken its way. These rocks were mainly Jura-Triassic and Cretaceous. It would appear from a careful study of the region that the turquoise owes its origin to action of the molten syenite on the copper-bearing sandstone of the Jurassic it had caught up in its escape. In the same way the deep deposits of lead and zinc may be explained as a result of the action of these flows upon the underlying Carboniferous. Other instances of this kind bear out the theory of such interaction.

The San Pedro Mountain is a more complicated instance of the interrelation of the andesite and syenite flows. The central part of the group is an old andesite volcano, but it has been thoroughly transformed by the intrusion of the syenite, so that the two rocks are apparently interbedded over the central parts. To the east the syenite is the prevailing rock, and large sheets and dikes of the same material occur. As in the case of the Cerrillos, the flows have caught up and uplifted the sedimentary sandstones and limestones. A curious garnet rock has thus been formed, and along the contacts of this are large deposits of copper and gold. The andesite and syenite association is also a good one for gold, and the region is a favored one in its geological construction, though somewhat circumscribed and disturbed. The effect of the eruption has made itself felt on the carboniferous limestones and, as in similar situations elsewhere, the contained lead and silver have been segregated by this agency, forming valuable mines.

South Mountain is also a syenite uplift, but the andesite element is lacking, and accordingly there seems to be no separation of gold. The adjacent limestones have, however, produced rich lead silver deposits of rather small and irregular nature.

In the Santa Rita district we have an illustration of the application of another principle. The region is essentially granite, the granite being like that elsewhere in the Territory—of a metamorphic nature. Upon the granite and its superjacent quartzite or conglomerate is a large sheet of limestone of subcarboniferous age. Along the Hannover Creek is a ridgelike uplift, from which the lime dips both ways, revealing the fact that at the contact of the lime with the underlying granitic rocks there is a collection of iron. In this case the iron is of great extent and good quality. In many places the iron has served as a precipitant for copper in the way above described, and large copper deposits occur. In the Santa Rita district proper is a large basin, affording an extraordinary opportunity for such precipitation. The basin is not of recent origin, as is seen by the occurrence of artesian water and the extensive alteration (kaolinization) of the feldspars in the porphyrys and granites of the basin. The iron may have come from the disintegration of the granite. The basin seems to have been formed by an uplift and fault to the south, cutting off the natural outlet. The iron appears on the margins of the basin and doubtless played its part in the collection of the magnificent copper deposits. The country rock is chiefly an orthoclase porphyry. The ores may originally have been in the form of the sulphides, but they now embrace the entire range from native copper in beautiful plates and concretions to malachite and azurite. Melachonite and cuprite are the characteristic ores in many of the openings.

The above instances are cited to illustrate principles which the observant miner may apply for himself. A few of these points may be summarized as follows:

Gold and silver are indigenous to the older eruptives, but require the influence of later silicious rocks to segregate them. They need not be sought in the later trachyte or rhyolite rocks unless there be present andesite or other basic rocks. It is useless to search for ore in the recent basalts. Copper is indigenous in the Juratriassic sedimentary sandstones, and may be found in organic deposits. It may also be found in the contact between the stratified rocks and the underlying granite, but peculiar circumstances alone warrant the hope of discovering large accumulations in either instance. Such a condition is afforded when the granite forms a basin and when iron deposits have preceded the copper. Lead is to be sought in the carboniferous limestones where the latter have been brought within the segregating influence of dikes of older eruptives. The lead will be found in shoots or channels worn in the limestone or in more permeable zones. The silver values are likely to be greater where the lead has been sublimed by heat. The original form of the lead is as galena, and the occurrence of carbonates indicates a concentration by water action. Turquoise is a result of metamorphism of copper-bearing stratified rocks by the action of intrusive igneous rocks.

These aphorisms might be largely extended, but may serve to indicate the tendency of recent research and the scope of the work now under way.

Very respectfully submitted.

C. L. HERRICK.

Hon. MIGUEL A. OTERO,
Governor of New Mexico.

NEW MEXICO MINERALS.

GOLD, SILVER, COPPER, LEAD, AND IRON.

RICH FIELD FOR PROSPECTOR AND INVESTOR IN EVERY COUNTY IN THE TERRITORY—THE CLIMATE PERMITS OPERATIONS THE YEAR ROUND.

That the whole mountain region of New Mexico presents a sure prospecting field is a safe assertion. To say that a few favored spots at which developments have taken place—merely points on the vast area of known mineralized territory—show even a small part of the great resources of our mountains is false. In the heart of the best developed camps is still much virgin ground, and much of the mineral-bearing area has scarcely been scratched by the prospector's pick. The chances in this Territory to-day are equal to those presented by the Cripple Creek or Leadville districts.

New Mexico has upwards of 80 mining districts, which are widely distributed, proving that the mineral wealth is not confined to one section.

In the northwest San Juan County presents great possibilities for extensive hydraulic operations.

Next, to the east, is Rio Arriba, where many thousand acres carry placer gold in sufficient quantities to permit of large enterprises. Perhaps no stream in the west presents the same advantages for the successful employment of first-class placer dredging machinery as the Chama. This gravel runs by test from 35 cents to $3, and, in some cases, as high as $7 per cubic yard. The famous mica beds are also in Rio Arriba County.

Taos County is not only a rich field for the placer miner, but for quartz mining it has districts already developed which indicate its boundless wealth. The Red River country is already well known to the mining world and is rapidly making a reputation as a producer of gold. La Belle and Amizette are also vigorously pushing to the front, development showing great possibilities.

Colfax County has already produced many millions in gold. Comprised within the boundaries of the Maxwell grant in this county are a large proportion of mineral lands, and the liberal terms given to prospectors by the grant owners is worthy of notice. Among the districts on this grant are Old Baldy, a large producer of gold; Ute Creek, where is located the famous Aztec mine, with a record of almost $1,000,000, and the Montezuma, a producer of about $300,000. There is great activity in Moreno Valley and in the Elizabethtown placers, which have to their credit over $200,000 in gold. Hematite is another promising camp in the immediate vicinity.

One of the richest mineral regions of the world is to be found in southern Santa Fe County. The placers at Dolores, Golden, and San Pedro, which were worked more than two hundred years ago by the

Spaniards, and are still being worked with "dry washers" by their descendants, have an inexhaustible supply of paying gravel, and the mountain range is one vast upheavel of mineralized rock. Cunningham Hill, in this district, is famous as being a mountain of ore. Dolores, San Pedro, and Golden were all mining camps before the discovery of Pike's Peak. At Dolores the Ortiz mine was a producer for years, the first milling machinery for the mine having been freighted across the plains before the advent of the railroad. It has a record of several millions, and preparations are under way to make the mine an extensive producer again. Near the Ortiz mine is the Benton, also a heavy producer of gold in former times, but idle for several years owing to litigation. The Benton is now in the hands of Judge Foree, of Durango. Near San Pedro the most noted properties are the Lincoln Lucky, the Gold Standard, and the Santa Fe Copper Company's mines. The Gold Standard has recently been bonded to capitalists for ninety days at a comfortable figure. At Golden is also located the Monte Cristo Mining Company, which is successfully working the immense gravel deposits on a large scale. Near Cerrillos is situated the turquoise mine. The output of turquoise since 1890, according to official report, has been about $2,000,000, although the former owner of the property claims this to be an underestimate, and says the yearly output since 1893 will reach $1,500,000.

Bernalillo County has 5,000 square miles of mineralized lands. The Cochiti district, in the Jemez Mountains, is becoming almost as well known as the farfamed Cripple Creek, and is willing to dispute with the latter the title of the "greatest camp on earth." The Albemarle has one of the finest milling plants in the West, and the returns from the company's mines are a substantial proof of what energy and capital will accomplish in New Mexico. Others of the best-known properties in the district are the Washington, Lone Star, Crown Point, Iron King, and many more. Hell Canyon, 20 miles to the east of Albuquerque, has some large bodies of free milling ore and fine indications of copper. Considerable work is now being done in the district and the near future will see it attracting the attention it deserves.

The Magdalena Mountains, in Socorro County, have been for years the scene of great mining activity. Lead-silver ores abound in the district, and late developments at Water Canyon and Copper Creek show good bodies of gold ore. The Graphic mines, under the management of Capt. A. B. Fitch, are well-known producers, and are at present being worked to full capacity day and night. The Kelly mines are also located in these mountains. In western Socorro County, near the Arizona line, is the Cooney district, rich in high-grade silver ores, but now being worked for their values in gold.

The far-famed Black Range of mountains, extending through Sierra County in a northerly and southerly direction, form the Continental Divide and constitute one of the greatest mineral sections of the world. From San Agustin plains on the north to Cook's Peak on the south, about 120 miles, and with a breadth of 40 miles, is a vast mineralized area which has been producing gold, silver, copper, and other precious and useful metals for years. The established districts on the north most largely developed are the Black Range and Apache, whose possibilities are as yet practically untouched and are beyond estimate. Following the range south are the Animas, Lake Valley, Percha, and Kingston districts, the principal mining centers on the belt above spoken of in Sierra County. At all these points are highly productive gold and silver mines. The ore from the Silver Cell, one of the deservedly famous mines in this range, was so rich that it was refused by the smelters and had to be sent directly to the mint as bullion, and the "Bridal Chamber," in the same range, took out in one piece silver valued at $80,000. One chamber, with the dimensions of an average dining room, surrendered to its lucky owners more than $1,000,000. Is it not time for capital to more thoroughly investigate a country with such stores of wealth? The immense gravel beds, rich in gold, at Hillsboro, should also be mentioned.

Grant County has within its boundaries some of the best-known gold-producing camps of the Southwest. Santa Rita del Cobre, the oldest district, has been worked since 1808, and its mines are rich in copper. Pinos Altos has a number of large producers, and the results accomplished in the past two years are proof of what capital and judgment are capable. San Francisco and New York mining men are large holders of Pinos Altos properties, and their presence in the district is felt. Hanover is rich in copper, and developments at present make special reference to the camp or individual mines unnecessary. Its ores are rich in copper, with an excess of iron. Cook's Peak is a heavy producer of lead-silver ores, and the shipping records of its many producing mines are its recommendation. Other camps in Grant County which are attracting their share of attention are Central, Gold Hill, White Signal, and Black Hawk, all rich in gold, silver, copper, etc.

Donna Ana County is dotted and crossed with mountain ranges which are pregnant with mineral wealth. Mines in the Caballo Mountains carry lead-silver ores; those of the Organs are rich in native silver, and in the San Diegos is found free-milling gold ore. There have been several recent strikes in Donna Ana County which are very rich.

The Old Abe mine, near White Oaks, in Lincoln County, is one of the heaviest gold producers of the Southwest. Workings in this district have reached a depth in some mines of 800 and 1,000 feet, and at that depth ore bodies are more permanent than nearer the surface, showing that nothing is lost by deep working. The Bonito country has extensive low-grade free-milling gold ores, but has been little prospected. In fact, this entire section is almost a virgin field for the prospector. The Jicarilla placer fields are well known to the miner looking for a grub stake. The completion of the El Paso and Northeastern into this rich section will go far toward assuring its future.

In the new county of Otero can be found minerals which will bring it prominently to the attention of the mining world. Besides the new placer discoveries in the Jarillas, which cover about 40 miles of gulches, a new find of ore, believed by the lucky discoverers to be tin, is the latest, and as there are large bodies of it, if their surmise proves to be correct, it will become one of the centers of mining excitement in the Territory.

The chain of mineral deposits running through Colorado are practically the same as found throughout the entire extent of New Mexico, superficial conditions and geological formations in this Territory being almost identical with those found in Cripple Creek and other rich Colorado camps. Following the mountain range from the northern boundary through Colfax and Taos counties to the southeast through Santa Fe to Lincoln, and to the southwest through Bernalillo, Socorro, Sierra, and Grant counties, the same general indications are met, the outcroppings being conspicuous and almost continuous. Many mines in this range have been good producers for years and new and valuable finds are of almost daily occurrence. At the present time development is being carried on more vigorously than in the history of the Territory. When the prospector and investor considers that this mineralized region extends through New Mexico a distance of over 400 miles and strikes almost every county in the Territory, he can readily see that it is the most attractive field in the West. Climatic conditions which make it possible to work the year round are also an advantage not to be overlooked.

Pine, fir, and spruce cover the mountain ranges below timber line, thus furnishing a plentiful supply of timber for mining purposes.

In the matter of fuel the coal fields of New Mexico are extensive, and as they are widely distributed, their product is easily and cheaply furnished to every district in the Territory. Labor is another feature which must not be overlooked, as it is especially cheap.

Among the natural resources of the Territory are gold, silver, lead, zinc, copper, brown and red hematite, ricolite, mica, coal, limestone, sandstone, fire clay, hydraulic cement, infusorial earth, silicified wood, turquoise, garnet, opal, natural gas, petroleum, mineral waters, mineral paint, alum rock, basalt, and the latest discovery—tin.

MINING AND MINERAL RESOURCES.

The mining resources of New Mexico are something wonderful. Here we have practically everything in the shape of mineral too numerous to mention, but running from salt and sulphur up to gold and silver and precious stones. And while there are numerous paying mines, none of them are what may be said to be well developed so far. All that it needs is the influx of more capital to thoroughly develop its various mines, when this Territory will become one of the richest mineral-producing regions of the Rocky Mountain range.

The mineral resources of our Territory have been slowly but surely forcing the attention of capitalists, and the outlook for the coming year is very encouraging and brighter than it has ever been. It has been a hard matter to interest men of means in our mines, but gradually this indifference is wearing off and capitalists are now sending experts to examine into the many promising propositions throughout the Territory, and we hope for good results from the interest taken by our Eastern friends, as New Mexico offers as fine opportunities in the mining line as any portion of the globe. This interesting of capitalists means that money for development, for mining machinery, for smelters, mills, and other reduction plants will find its way to New Mexico and make the mining camps of New Mexico large producers.

GOLD OUTPUT WILL BE ENORMOUS FROM MANY DISTRICTS—EASTERN CAPITAL IS BEGINNING TO DISCOVER THE OPPORTUNITY—NOT ONLY GOLD, BUT OTHER METALS AND PRECIOUS STONES ARE FOUND THERE.

Mining matters in New Mexico can only be spoken of as surprising in every respect, and everywhere from along the line of that industry reports are continually coming in of new strikes being made, old mines being worked to their fullest capacity, and new corporations being formed for the purpose of exploration and practical working. It is being demonstrated every day, and in all of the principal districts, that there is gold and plenty of it. What is needed now is capital with which to work mines that have been proved more than good paying propositions. In many districts the experimental period is positively passed, and practical work with capital is being done. Capital is pouring in from the East, and the gold mines of New Mexico are proving vastly more productive of profits than the manufactories of Massachusetts, Ohio, and Illinois, and Eastern men are beginning to realize that such is a fact.

THE MOGOLLON DISTRICT.

Down in the southern or Mogollon district the activity is very great, and increased capacity is steadily marked. The Confidence is turning out from 80 to 100 tons of ore every day with a force of 70 miners. The ore is of good quality, and the proprietors are enjoying a well-deserved period of profits.

The Deadwood mine, in the same district, is now run in connection with the Deep Down mill, which is using daily considerable ore which averages $16 in gold and $21 in silver. There are immense bodies of this ore in sight and very easily gotten out. Numbers of smaller mines in the same district are being worked, and prospectors are actively looking up that region, and with considerable success. The Philadelphia men who are interested in that section are reported as pushing the formation of their big company, and it is expected their operations will be commenced in the near future, giving numbers of men in that region employment.

THE HILLSBORO OUTPUT.

And at Hillsboro, in practically the same district, the output from the mines last week amounted to 180 tons. This is a section which could be advantageously prospected, Other regions in the Territory have become so well known to mining men that their attention has been diverted to a great extent away from the promising Hillsboro country, although it has been demonstrated there is plenty of gold and other mineral in that region only awaiting development.

In the Ortiz mine grant things are looking lively. The men who have control of the Edison interest there do not say much, but it is generally known that the machinery for the intended gigantic operations on that grant by the Edison Company is being gotten ready in the East as fast as possible, and that before very long a large number of men will be finding employment in producing the yellow stuff from that immense deposit of ore.

THE ORTIZ MINE.

The Ortiz mine is now being run to its full capacity, about 50 tons per day being the average. This mine bids fair to become a wealth producer, and it is significant that but a few months ago the boiler horse power at that mine was but seven. Within a few months two changes, both for more power, have been instituted, and to-day they are using a 100-horsepower boiler, to its full capacity, with the probability in the near future of being compelled to add more as their property reaches a higher state of development.

The Shoshone, in the same country, is another proposition which is very well thought of, and the owners are now engaged in sinking another shaft. At a depth of 20 feet, 4 feet of mineral has been disclosed, and predictions for the future of that property are very bright.

THE COCHITI DISTRICT.

In the Cochiti district and around Bland and Golden things are particularly promising. Bland seems to be a trifle more favored so far as new people and prospectors are concerned, it being reported that new arrivals to that camp have averaged 10 per day for some time back. As few of the new prospectors seem to have any thought of leaving, it must be taken as conclusive evidence that the camp is in a sound, healthy condition. Most of the new arrivals are those directly concerned in mining, and as there is a large unexplored and unclaimed body of land in that vicinity yet, the prospects seem to be alluring for the prospector. Newly-opened claims are very easily disposed of, but the owners seem to be inclined to hold on, knowing that time will increase the value of their properties. The Cochiti is undoubtedly the best paying region in the Territory.

NOT A BOOM MOVEMENT.

The unusual developments, both under way and projected, are not the result of a boom; they are but the honest, gigantic stride forward of a surpassingly rich country, whose resources are beginning to be known. The latest big project is the substitution of electricity for steam as the motive power in that district. With a big dam constructed across the Rio Grande about 12 miles above the Albemarle group of mines, and an electric-power house at that point large and powerful enough to furnish power to not only the mills, but for the tramways and lighting purposes, it is plain to be seen that the Cochitis will be prosperous. This scheme is a bona fide proposition and will be carried out by the manager of the Albemarle, backed by his company. One mining deal was consummated this week whereby a Mr. Weatherhead, of Cleveland, Ohio, gained control of the Gleason mine at Golden. He proposes to immediately install new reduction and smelting works on his claim and the property will no doubt pay out big. It has a 2½-foot vein ranging from $20 to $200 to the ton.

In the Crown Point active work is being done, drifts being run, and the contractors report the ore improving at every foot of advance. The Monte Cristo has been enjoying a run of luck, and the owners have ordered 100 tons of machinery for their placer claims. On the Ermine extension development has been recently done, the results proving highly satisfactory, the property showing a 4-foot vein running through. On the Albermarle Group everything is humming. The pay roll of this mine already averages $16,000 per month, and that property bids fair to make a national reputation as a producer of gold. While gold commands the most attention, the silver propositions are all right, and should silver ever be restored to its rightful place, prodigious production of that metal in central New Mexico would be chronicled. Opals are frequently found in this part also. In Santa Fe and more particularly Taos County, deposits of copper are being exploited with good results, and the Copper Glance mine in Taos County has been bonded to Chicago capitalists.

THE RED RIVER COUNTRY.

Up in the Elizabethtown and Red River country everything betokens a very busy summer, and, like the other mining districts of the Territory, seems to be very sanguine of pronounced and abundant success.

Every able-bodied man in that region is able to instantly command work. At the Mallette property very fine free gold specimens have been shown up, with the full expectation that the good prospects will continue. The "I Own" is undergoing considerable development. H. B. Tompkins's property on the Black Mountain, in the same vicinity, is panning out well, his shaft at 35 feet showing up a 4-foot vein of excellent ore. One of the promising claims is that of Henry Young, who has been actively at work taking out ore that assayed $500 per ton. The Anderson property at Elizabethtown is authoritatively reported as sending $100 ore to the mills. In the northern region, and, in fact, in the several mining districts of the Territory, the mining outlook for the coming season is particularly enticing, and there is no doubt but the present success will prove a great benefit as a sound advertising medium for the undoubtedly great and rich mining resources within our borders.

THE MINES OF NEW MEXICO.

[From Territorial Bureau of Immigration.]

GOLD, SILVER, COPPER, LEAD, IRON, COAL, AND ALL THE PRECIOUS AND USEFUL METALS AND MINERALS—FIELDS FOR THE PROSPECTOR AND INVESTOR IN EVERY COUNTY OF THE TERRITORY—A CLIMATE THAT AFFORDS AN OPPORTUNITY FOR THE MINER TO WORK THE YEAR 'ROUND—THE ATTENTION OF MINING MEN FROM THE NORTHERN STATES NOW BEING ATTRACTED TO THIS TERRITORY, RICH IN MINERAL, AND LARGE-SIZED INVESTMENTS ARE BEING MADE.

A vast mineral field.—Mr. J. D. Bone, a mining expert of good standing, who has a practical knowledge of the different mineral districts in the Territory, says:

"As a broad assertion, we may say the whole mountain region in New Mexico is a fair and a reasonably sure prospecting field. It is a very false idea to suppose that a few favored spots, at which development has taken place—merely little pin points on the vast area of known mineralized territory—are all, or one-thousandth part, of the great resources of our mountains.

"We do not hesitate to say that quite a promising field for prospecting would be right in the midst of any one of our oldest camps. This being true in the oldest and livest mining camps of the Territory, surely the vast field of known mineral-bearing area has been but indifferently prospected, if indeed, at all.

"The seeker after hidden wealth has here in New Mexico a wide field, one which it is not at all improbable will exceed in value anything yet discovered. The areas most likely to produce results are where eruptive forces have been most active and the disturbances and crystallizing of the strata most pronounced.

"In this Territory, with its 122,444 square miles, are rich and inviting fields, practically untouched by the pick of the prospector, and offering the miner and capitalist opportunities for rich returns for labor and money expended, such as are very seldom found in any mining section of the great west. As good, if not better, chances are presented within the boundaries of this Territory than were found in Leadville or Cripple Creek, Colo.

"*Mining districts.*—This Territory has now some eighty-five mining districts, which are scattered widely, and cover a large section of country, thus showing that the mineral wealth is by no means confined in any one special place, but largely distributed over a great extent of territory.

"The territory in New Mexico already more or less developed equals 30,000 square miles of mineral-bearing country, and the better developed districts of this vast extent are as rich as any exploited elsewhere in the United States, and its as yet great 'undeveloped areas' offer to the intelligent prospector and energetic man of means opportunities found in no other mining country.

"*The great mineral belt.*—By examining any ordinary map of the Western States it will be seen that all of the most valuable recent developments of minerals in southern Colorado are on a well-defined line following the Rocky Mountain system into and across New Mexico, and that that line extends through the central west and southwest portions of the Territory without a break of any considerable extent.

"That conditions along this extent of country, almost 400 miles in length, in many respects resemble the gold and silver bearing formations of Creede, Cripple Creek, Rosita, Silver Cliff, and the great San Juan country of Colorado can not be doubted, and in the coming years it is not unlikely this section of New Mexico may develop many places as productive of wealth as the above-named Colorado districts.

"*New Mexico gold fields.*—Lying just south of the great Commonwealth of Colorado, our first counties are San Juan, Rio Arriba, Taos, Colfax, and Union.

"The evidences of gold throughout San Juan are such that this county becomes attractive as a point where extensive hydraulic operations may be conducted with every assurance of success.

"Passing east from this county we come to Rio Arriba, where the mineral deposits, worked to any great extent, generally take the form of placers and vast fields of coal. It would seem to us that in the vicinity of Tierra Amarilla and Good Hope would be a good and most promising prospecting field for the precious metals.

"*Rich placers.*—Near Abiquiu, along the Chama River, are gold placers that cover nearly 20,000 acres, which show a remarkable average yield of gold, and as water seems to be plentiful for most of the year, this vicinity is unexcelled as a point where large and paying mining enterprises may be conducted. Examination of these deposits along the Chama River are now being made by Prof. F. A. Reynolds, acting under directions from an Eastern mining syndicate, and the daily press report this gentleman as saying that gravel tested by him runs from 50 cents to $3 in gold per cubic yard.

"The deep placer deposits of Taos County, along the Rio Grande, are probably the most extensive in the United States, and investigation warrants us in saying that nothing since the discovery of California and Australia is comparable for its measurable resources of gold available by the hydraulic process. Reference to the report of Prof. Benjamin Silliman, of Yale College, to the Commissioner of the General Land Office, published in 1880, will fully convince even those who are sending men and money to explore Alaska's frozen fields that right here in New Mexico—a land of perpetual sunshine—are equally rich and much more desirable gold-placer deposits. The altitude of these deep placer deposits is perhaps 7,000 feet; still, because of this locality being sheltered by the encircling mountains, and because of its more southern latitude, placer mining can be carried on quite nine months of each year and at points the entire year. These great placer deposits do not alone constitute Taos County's great undeveloped resources, for her mountains are rich in metals, as is fully shown at numerous points where there are producing gold, silver, and copper mines.

"*Quartz mining.*—The Red River country in Taos County is fast becoming known to mining men throughout the world as a district destined in a very short time to rival any one of our greatest gold-producing sections.

"At La Belle, Amizette, and other points development is being rapidly pushed, and it may be said that Taos County has fairly entered upon a bright mining future.

"To the east of this rich county of Taos lies Colfax County, a district which has produced many millions in gold, and which to-day gives brighter promise than at any time in its history. A very large proportion of the rich mineral lands of this county are comprised within the boundaries of the Maxwell Land Grant Company's property. The liberal policy pursued by this company in its dealings with the prospector is worthy of notice. The management of this grant has laid down rules very similar to those governing mineral locations on public domains, and the property is thrown open to the prospector and miner, who can at a nominal cost acquire title and develop mining properties on the grant. The old Baldy district on this grant is a large gold producer, so also is the Ute Creek district, where is located the famous old Aztec mine, with a record of almost a million in gold. The

Montezuma mine, on what is commonly known as Montezuma Hill, has produced between $200,000 and $300,000.

"There is greater activity in the west Moreno Valley district than ever before, and only 3 miles from the new but promising camp of Hematite are the world-famed Elizabethtown placers, which have produced over $200,000 in gold. Aside from these famous placers it is said that miners, in a crude way, produce large sums in gold from placer ground but little known.

"*Grand opening for prospectors.*—Little mining of the precious metals has been done in Union County, but it is not an unlikely field for prospecting for our undeveloped mineral resources.

"Passing from Union County, we next take up Mora and San Miguel counties, two sections of the Territory which seem to have been but indifferently prospected. The mountain range west of the city of Las Vegas lies directly in the gold-producing belt, and surface indications are most favorable.

"South from the city of Santa Fe, Santa Fe County, and not far from the town of Cerrillos, in a disconnected range of mountains, with perhaps an average width of 7 miles, is one of the most remarkable mineral regions of New Mexico, and we may say of the world. This range travels north and south and is known as the Ortiz Mountains. The surface indications are unsurpassed, and a number of fine bodies of low-grade, free-milling gold ores are found, among which may be especially mentioned the famous Cunningham Hill and adjoining properties near Dolores. The main western lode, especially in its southern extension, is rich in copper, as found in the workings of the San Pedro Copper Company. This region was known to the early Spanish explorers, who, upon their advent into this country, discovered and worked the rich gravel deposits at the base of Ortiz Mountain, in and about San Pedro, Golden, and Dolores.

"*A million a year.*—An experienced and reliable expert who examined these extensive placers a few years ago reported that, 'if sufficient water were placed thereon, these placers could be made to yield $1,000,000 in gold per year for over twenty-three years.' The 'country rock,' being soft and porous so that the vein matter lying near the surface rapidly oxidizes and the oxidized 'honeycomb' quartz remaining with its vast supply of free gold, is eroded by degrees and being carried down the slope to feed the placers below.

"*The famous turquois mine.*—In the vicinity of Cerrillos is a small section of mountainous country, in which is located one of the world's best known and most productive turquois mines. There are, as near as we can learn, some sixty or seventy turquois claims in New Mexico, some ten or a dozen in active and profitable operation.

"The output of turquois in New Mexico, as taken from official sources, was $150,000 in 1891, $175,000 in 1892, $200,000 in 1893, $250,000 in 1894, $350,000 in 1895, and $475,000 in 1896; but it is openly asserted that the true value of turquois mined since 1890 has been greatly underestimated. As an illustration, one of these mines sold in 1893 for $250,000, and, according to the statements of a former owner, has paid a million and a half a year since that time. One single stone taken out is reported to have been bought for $6,000 in New York.

"*Cochiti and Hell Canyon.*—Leaving Santa Fe County, we next take up Bernalillo, which has an area of 8,000 square miles, of which 5,000 square miles are classed as mineral lands. The well-known Cochiti mining district practically dates from discoveries made in 1893. Progress was retarded by title suits under old grants, but a decision favorable to the miners was recently handed down by the United States Supreme Court, and now development in this wonderful camp goes steadily forward.

"East of the city of Albuquerque some 20 miles is the Hell Canyon district, destined in the near future to attract widespread attention. The large bodies of free-milling ores disclosed in the workings of the mines are probably as extensive for amount and character and work as any in the United States. These large bodies of ores are deserving of investigation, and if operated on proper lines will produce handsome returns for many years to come. Considerable mining machinery is now being placed in the camps and active operations will soon commence.

"In our travels south we have now come to Socorro, a county blessed with abundant natural resources, extending as it does about 170 miles east and west by 100 miles north and south, and containing over 10,000,000 acres, some sections of which have produced millions in mineral wealth. This county, which for many years past has been steadily adding to the mineral wealth of the world, stands to-day upon the threshold of a brighter future than at any time in its history.

"*A carload of bullion a day.*—Just west of Socorro City there are large deposits of lead-silver ores, but only at one point in the county is this class of ores now being mined to any great extent—in the Magdalena Mountains. Water Canyon and Copper Creek districts, west of Socorro City, are very rapidly coming into prominence as gold producers, and with the improvements now being made bid fair to rival the best-known sections of the Territory. At the town of Kelley, some 30 miles west of the city of Socorro, are located the famous Kelley mines, heavy producers of lead-silver ores. Under the able management of Capt. A. B. Fitch the Graphic mines are producing with ease sufficient ore to keep in full operation day and night the 100-ton smelter. A carload of bullion is turned out by this plant every twenty-four hours, thus making lively times not only for the many miners in and about Kelley, but every man in this section reaps a measure of benefit from this industry.

"Away to the west in Socorro County, near where the Territorial boundary line joins Arizona, is located the Cooney district, a section at one time producing high-grade silver ores, but whose mines are now being worked largely for the gold values contained in the ores.

"*The far-famed Black range.*—We have now reached the county of Sierra, wherein are located the well-known Mimbres, or Black range of mountains, which in many respects are among the most remarkable in the United States. It has been most truly said that an extent of country from San Augustine plains on the north to Cooks Peak on the south, a distance of over 120 miles, is mineralized in a greater or less degree throughout. Mines located along this mineralized belt of country have long been famed as steady producers of high-class ores of all the useful metals, including gold, silver, copper, lead, and iron. The Black range extends in a northerly and southerly direction, and is about 40 miles in width. The apex or summit of the range forms what is known as the Continental Divide. The topography of the country is such as to make any point easily accessible."

A yet undeveloped field.—A large percentage of the known mineral-bearing area of New Mexico has been but indifferently prospected—very much of it not at all. Consequently there is still here a wide field for the seeker after hidden wealth. It is therefore not impossible, or even improbable, that there are yet here quite as profitable fields, untouched by the pick of the prospector, as any that have been developed. There is good reason to believe that the southerly western portions, nearly all mountainous, bordering Arizona and Old Mexico, abound in all the valuable minerals equally if not beyond the northeasterly portions of the mountain areas, nor that in due time, under the rigorous search of the energetic and intelligent prospector, great values will in the not distant future be developed, and to an extent and value equal, if not beyond, any that have yet been reached.

The capitalist, the miner, or prospector who decides to cast his lot here will find the foundations of a broad and enlightened society well established. They will find a generous, progressive, and liberal-minded people, ready to lend a helping hand to every comer. They will find order, society, law, and an enlightened public sentiment ruling the Territory.

Favorable climatic conditions.—Not only the character of these deposits as given by conservative and reliable correspondents, but the accessibility and value as shown by the daily record of output and the vast extent of the field covered, mark this as the most attractive field covered to the minor and mine hunter yet developed on the American continent, if not in the world.

The annual report of the New Mexico section of the United States Weather Bureau for 1897, published in Bulletin No. 1, 1898, contains valuable information in regard to the climatic conditions in New Mexico, especially to prospectors and miners. While it shows, as compared to more northerly latitudes, that the mean temperature of the mining sections of New Mexico was seldom below the freezing point and the weather was very rarely too cold for prospecting or surface-mining work. If so disposed, the miner can put in the entire year prospecting or mining, at his pleasure or convenience.

Mining claims, how located.—The bureau frequently receives inquiries asking for information concerning the manner of locating mineral claims in New Mexico, and if our laws differ from the regulations prescribed by the United States General Land Office.

We can say that, in the main, the United States laws, as found in the Revised Statutes, governing the location of claims, govern also in New Mexico; the laws of New Mexico making one additional requirement relating to the locating of mines, which is set out in section 1 of chapter 25, Laws of 1889, as follows:

"That the locator or locators of any mining claim, located after this act shall take effect, shall, within ninety days from the date of taking possession of the same, sink a discovery shaft upon such claim to a depth of at least 10 feet from the lowest part of the rim of such shaft at the surface exposing mineral in place, or shall drive a tunnel, adit, or open cut upon such claim to at least 10 feet below the surface exposing mineral in place."

The United States laws prescribe that mining claims upon veins or loads of quartz or other rock in place, bearing gold, silver. cinnabar, lead, tin, copper, or other valuable deposits, shall not exceed 1,500 feet in length along the vein or lode; and the claim is limited to 300 feet on each side of the vein or load. (See sec. 2320, Rev. Stats.)

Tunnels.—Where a tunnel is run for the development of a vein or lode, or for the discovery of mines, the owners of such tunnel shall have the right of possession of all veins or lodes within 3,000 feet from the face of such tunnel on the line thereof to the same extent as discovered from the surface; and locations on the line of such tunnel, of veins or lodes not appearing on the surface, made by other parties after the commencement of the tunnel, and while the same is being prosecuted with reasonable diligence, shall be invalid. Failure to prosecute the work on the tunnel for six months shall be considered an abandonment. (See sec. 2323, Rev. Stats.)

Remarkable activity.—The eyes of mining men being now upon the remarkable activity which has suddenly opened up in the Cochiti district, we quote what Mr. Frank W. Wynkoop says of one of our live camps:

"A movement of great importance to the mining world, and especially to New Mexico, is at present in progress in the Cochiti mining district, which is situated in Bernalillo County, some 50 miles north of Albuquerque, the county seat, and some 40 miles west of Santa Fe, the capital of New Mexico. Mining is reviving throughout the district. Mining companies of long and general experience, supported by unlimited capital, have taken hold of many of the larger properties, and have instituted operations of a nature not to be surpassed by those of any mining district in the West. The leading features of these operations consist of the construction of a steel mill of 125 tons daily capacity, at a cost of $250,000, to treat the ores of the Albemarle group of four mines; the resumption of operations at the Bland mill, under improved methods and with excellent success in the saving of the gold and silver values contained in the ores of the Lone Star group of mines, at a cost sufficiently low to afford a handsome profit; the projected new 200-ton mill to treat Crown Point and Pino Canyon custom ores, and the development of many of the mining properties which, up to a few months ago, lay idle for the need of capital to make them paying mines.

"To give an idea of the magnitude operations in this district are attaining, we will mention the fact that within the past three months extensive developments have been in progress upon four large properties; five other large groups of claims have been taken under lease and bond by responsible mining companies of long experience for large amounts; the construction of one quartz mill has been completed and the construction of another mill is in progress, while two others are in contemplation of early erection.

"The entire Cochiti mining district embraces a mineral region some 6 miles from east to west by about 18 miles from north to south, and includes three distinct parallel quartz lodes extending north and south and cropping above the surface, which are of enormous size and possess an even value of $8 to $40 to the ton, selected ore running as high as $1,800 to the ton.

"The indications of the present leave little doubt that the Cochiti mining district will henceforth enjoy an era of great prosperity."

A Klondike at home.—The "Klondike of the Southwest" is the name frequently applied to New Mexico, and, judging from the flattering progress she has made in mining since January 1, 1898, before the end of the year the fever for the gold in the "Klondike of the Southwest" will be as high and unabating as it now is for the "Klondike of the Northwest," and, in contrast and comparison, producing gold against gold, railroad facilities against reindeers and dogs, food against famine, comfort and health against hardships, and happiness against misery.

Our vast natural resources.—It is no exaggeration to affirm that in point of natural resources none of the Rocky Mountain States exceed New Mexico. In addition to gold, silver, copper, lead, and zinc, coal (anthracite and bituminous), fire clay, alum, sulphur, salt, gypsum, onyx, and marble are found in large deposits. New Mexico supplies the world with turquois.

GYPSUM.

In south Santa Fe County, in the county of San Miguel, and in several other places in New Mexico are to be found large deposits of this mineral. In Donna Ana County, on the San Augustin Plains, there exists the largest deposit of gypsum known in the world, of an exceedingly pure character. The location of this deposit is unique. The

San Augustin Plain is about 150 miles in length from north to south, and from 30 to 60 miles from east to west. Near Whiteoaks, in Lincoln County, in the midst of this plain, is the crater of an ancient volcano, the lava from which has flown in a southerly direction like a stream of water for a distance of 60 or 70 miles, varying in width from one-half to 3 miles. At the southern end of this stream of lava there is a small stream of salt water flowing into a salt lake, about 1 mile in width, and 1½ miles in length. At the southern end of this lake the bed of gypsum begins, and extends in a southerly direction down the center of the plain, adjoining what appears to be an ancient river bed, almost without a break for a distance of 50 miles. The gypsum bed varies from 5 to 20 miles in width. It is granulated in character, white as the driven snow, and seems to be piled up on the plain like snowdrifts, requiring no labor for mining or for handling. I can not more accurately describe its appearance than by comparing it to granulated sugar. If you should take granulated sugar in one hand and the gypsum in the other, it would be difficult to tell one from the other by sight or touch. The body of the gypsum stands from 10 to 40 feet above the surrounding plain, and the line is as distinctly marked as the sand upon the ocean beach.

CARBONATE AND SULPHATE OF SODA.

Immediately adjoining this extensive deposit of gypsum upon the west, and in what is apparently the bed of an ancient river or lake, exists a deposit of carbonate and sulphate of soda, carrying about 15 per cent of carbonate of soda, 20 per cent of sulphate of soda, 4 per cent of borax, the remainder being mostly moisture and sulphate of lime. This deposit is about 1 mile wide and 5 miles in length. Its depth is unknown. At from 2 to 4 feet below the surface water is encountered, which is largely impregnated with these minerals and with chloride of sodium. Explorations have been made in several places throughout the deposits by driving down tubes to a depth of from 20 to 30 feet without discovering any change in the character of the deposit.

There is also a considerable deposit of carbonate of soda near Manzano, in the county of Valencia, and near Wagon Mound, in the county of Mora.

KAOLIN AND FIRE CLAYS.

These valuable minerals have been found in considerable quantities in several places in the Territory. The most notable deposit of fire clay worked to any considerable extent is situated near Socorro, in Socorro County. There has been a recent discovery of a large deposit of kaolin and fire clays in the suburbs of Santa Fe of superior quality. Efforts are now being made to utilize these clays at the Territorial prison. In the immediate vicinity there is also found a considerable bed of graphite, and it is hoped that in the near future it will be extensively worked.

ALUM.

A large deposit of alum has been opened on the Gila River. It is reported to be of great commercial value, and is now being worked to some extent. With proper railroad facilities these alum beds and the beds of gypsum and soda heretofore referred to would become the most productive properties in the Territory.

PRECIOUS STONES.

In describing the mineral resources of New Mexico, the native precious stones are worthy of mention, as they are steadily rising in popular estimation and production.

Traditionally this Territory has been noted as having produced some remarkable gems, and recent developments are proving the older records to have been correct. It is only recently that scientific research and skilled labor have been directed to this purpose. The result is a steady increase of expert prospecting and labor in development, which, though only fairly begun, has resulted in finding many varieties of precious and semiprecious stones.

The estimated production and value of gems up to the year 1890 can be found in the census reports of that year. It is worthy of remark that the amount and the value thereof are understated, the facilities for correct and full information being limited.

Since that time the annual product has more than doubled, and is still increasing. Diligent prospecting has revealed new deposits, and the industry bids fair at present to become a large item in the economic resources of the Territory.

The gems found in New Mexico, in the order of their value, are emeralds, there being one now cut in Santa Fe which weighs 1 karat and is of fine quality. Many other smaller ones have been found, although no expert search has been made for them thus far. A very recent find, next in value, is a gem resembling the ruby in respect of color, brilliancy, and hardness. Of these, quantities are found frequently associated with peridots and garnets, but differing from the latter in being harder and of a different specific gravity and form of crystallization. The range of color is from a light rose or pink to that of a bright red garnet. Though no very large ones have been found, yet gems cut from those found have sold at $20 to $50 each, while their numbers and merits have made them a decided acquisition to the list of precious stones of New Mexico, which must, when more widely known, create for them a large demand.

The turquoise deposits of the Territory are too well known to require an extended description. It is only necessary to state that while some of these gems have been famed in Europe for centuries, yet in the United States they have never met the appreciation their merits and rank as gems deserve until the last few years; now they are in great demand, having been pronounced by experts equal, if not superior, to the Persian turquoise. There are single gems from Santa Fe County, now in New York, held as high as $4,000, and some in Santa Fe of nearly equal size and quality.

This sudden appreciation has given a stimulus to further research, resulting in finding large turquoise deposits near Silver City, in the Hatchitas and Cow Spring mountains, of great merit. One of the new discoveries is phenomenally large, considering quantity of production, size, and color of stones found in it.

In addition to the above-named are found native euclase, the so-called Montana sapphires, garnets, milk and fire opals, peridots, a great variety of fine agates, besides petrified woods, fit for inlaying, mosaic work, or jewelry. Gold and silver quartz, valuable for fine work in jewelry, are produced from various mines.

COAL.

Chief among them is that of coal, of which there are large beds of bituminous situated in nearly every county in the Territory, and an extensive body of anthracite coal near Cerrillos, in southern Santa Fe County.

WEALTH IN SULPHUR.

BEDS CLOSE TO A PECOS VALLEY STATION.

The following article on the sulphur beds lying just west of Guadalupe, on the Pecos Valley road, is taken from the El Paso Herald. A number of Eddy parties are interested in the deposits, having been engaged for some time in investigating them. During the past two months E. Miall Skeats, of this city, has spent considerable time there, and The Argus believes that he is very sanguine of the results. The article from the Herald is as follows:

"One of the greatest sources of the as yet undeveloped mineral wealth of El Paso County lies in the extreme northeastern portion of the county, and is in the form of almost limitless deposits of nearly pure sulphur, easily accessible and requiring but little capital (chiefly for refining works) to place it on the market as a finished product. These deposits fill numerous patelliform basins or craters of extinct volcanoes on the plains southeast of the southern point of the Guadalupe Mountains, beginning 2 to 3 miles south of Delaware Creek and 12 miles west of Guadalupe Station, on the Pecos Valley Railroad. So far they are known to exist on some twelve or fourteen sections of land, and are believed to extend over many more, though but twelve claims have been located and these but superficially prospected by shafts usually from 12 to 15 feet in depth, only one being as deep as 30 feet, and all these in nearly pure sulphur to the greatest depth attained. The region round about might be called a prairie, though dotted here and there with low hills overgrown with scrub cedar and covered with the finest grasses. Numerous springs of pure water exist in the vicinity, and Tinnin's great spring ranch lies 6 miles south.

"These basins or craters are usually from 600 to 700 feet in diameter, and toward the center it declines to a depth of 3 or 4 feet, the surface being a thin covering of blackened earth, strongly impregnated with sulphur, and presenting the appearance of having been blackened with sulphuric acid. In one shaft, sunk in the hope of striking water, a liquid was encountered at a depth of 15 feet, but on being tasted it proved to be very strong sulphuric acid, and when the taster hurriedly ejected it from his mouth, adulterated with saliva as it was, it stained deeply and did some injury to his coat sleeve. It is believed, however, that this acid is small in quantity, detained by some solid rock basin, and that it was formed by percolating rain water taking sulphur in solution as it descended.

"As indicating the process by which these vast masses of sulphur were deposited, time has left no trace. As the country round about is gypsum, it might be inferred that both minerals were deposited from sulphur springs, or springs containing sulphide of hydrogen, which sometimes deposits sulphur by the partial oxidation of the hydrogen, and gypsum by the more complete oxidation of the hydrogen. Such springs flowing into a basin lake then covering the region would pour limitless quantities of sulphide of hydrogen (only partially oxidized) down the craters of extinct volcanoes, thus ultimately filling them with sulphur to unknown and probably very great depths, while the impregnated water spread out in the shallow lakes would become more completely oxidized and deposit the gypsum beds now found surrounding the craters. Or, as the craters of extinct volcanoes (as in the case of Popocatapetl) are frequently found plugged with sulphur, it may be that this mineral, in a sublimated state, arose from great depth and was precipitated on the lips and walls of the crater until the orifice was filled. But, whatever the process of deposition may have been, it is certain that these deposits of sulphur are of such vast extent and purity that El Paso is destined to rival the famous sulphur deposits of Sicily, from which island the United States alone formerly imported $50,000,000 worth of sulphur annually.

"Near the surface of the basins in question, where more or less earthy matter has become mixed with the mineral, and even pebbles of foreign rock are embedded, the mass shows only about 60 per cent sulphur, but deeper down the sulphur is found almost pure (98 per cent) and in massive beds, finely lined with varying colors and resembling the finest yellow clay. Twelve different companies have already treated and partially prospected claims, and one of these companies has projected a railroad from Guadalupe Station, on the Pecos Valley Railroad, to the mines, there being already a fine wagon road to the south, extending 30 miles west from the Pecos Valley road. As these deposits are numerous, doubtless of great extent or depth, and are known to be exceedingly rich, the field is an inviting one for prospectors and small capitalists. The material can be mined and refined at little cost, and can be marketed at wholesale at $32 per ton for roll and $33 to $35 per ton for flour."

REPORT OF THE MINE INSPECTOR.

SILVER CITY, N. MEX., *August 24, 1899.*

SIR: In compliance with section 3 of an act of Congress approved March 3, 1891, entitled "An act for the protection of the lives of miners in the Territories," I herewith beg leave to submit the seventh annual report of this office, covering the fiscal year ended June 30, 1899.

JOHN W. FLEMING,
United States Mine Inspector for the Territory of New Mexico.

His Excellency MIGUEL A. OTERO,
Governor, Santa Fe, N. Mex.

BERNALILLO COUNTY.

OTERO MINE.

[Alex. Bowie, general manager; John Stewart, superintendent; James W. Bowie, mining engineer.]

Located about 2½ miles in an easterly direction from the town of Gallup, Bernalillo County, N. Mex. Owned and operated by the Caledonian Coal Company. Kind of coal, lignite; thickness of vein, average, 4 feet and 6 inches; total output, fiscal year, 96,473 tons; estimated value of output, $144,709.50; depth of slope, 1,400 feet; total value of improvements, $45,000; average number of men employed inside, 139; average number of men employed outside, 31; average number of boys employed inside, 2; number of days mine was operated, 233; number of tons used at mine, 1,500; where coal is marketed, Santa Fe Pacific Railroad, Santa Fe, Prescott and Phœnix Railroad, and California.

This mine is situated on a spur about 1 mile in length, connecting with the Santa Fe Pacific Railroad near Gallup station; is operated by a slope 1,400 feet in length, and has a capacity of about 700 tons per day. This mine is ventilated by an air shaft and furnace.

RECORD OF INSPECTION.

September 26, 1898.—On this date I inspected the underground workings of the Otero mine. I measured 12,960 cubic feet of air entering the mine per minute, and measured 13,750 cubic feet of air returning per minute. I found the ventilation good throughout the workings of the mine, and found the workings of the mine well timbered and in good condition.

November 16, 1898.—I again inspected the Otero mine. I measured 17,600 cubic feet of air entering the mine per minute, and measured 18,360 cubic feet of air returning per minute through the return air course. I found the ventilation very good throughout the workings, and found the working places well timbered and in good condition.

January 12, 1899.—I again inspected the Otero mine. I measured 11,670 cubic feet of air entering the mine per minute, and measured 12,960 cubic feet of air returning per minute. I found the ventilation good throughout the workings of the mine, and the workings well timbered and in good condition.

April 13, 1899.—I again inspected the Otero mine. I measured 15,780 cubic feet of air entering the mine per minute. I then inspected the workings of the mine and found them in good condition. On this date the mine was not being operated.

May 26, 1899.—I again inspected the Otero mine. I measured 22,150 cubic feet of air entering the mine per minute, and measured 22,750 cubic feet of air returning per minute. I then inspected the workings of the mine and found them well timbered and in good condition. On this date the mine was not being operated.

THATCHER MINE.

[Alex. Bowie, general manager; John Stewart, superintendent; James W. Bowie, mining engineer.]

This is a new mine located about 3 miles in an easterly direction from the town of Gallup, Bernalillo County, N. Mex. Owned and operated by the Caledonian Coal Company, and commenced to ship coal on January 1, 1899. Kind of coal, lignite; thickness of vein, average, 4 feet and 6 inches; total output, January 1 to June 30, 1899, 11,311 tons; estimated value of output, $16,967; depth of slope, 1,100 feet; value of improvements, $25,000; average number of men employed inside, 26; average number of men employed outside, 6; number of boys employed inside, 1; number of days mine was operated, 117; number of tons of coal used at mine, 150; where coal is marketed, Santa Fe Pacific Railroad, Santa Fe, Prescott and Phœnix Railroad, and California.

This mine is situated on a spur about 2 miles in length, being an extension of the spur on which the Otero mine is situated, and is connected with the Santa Fe Pacific Railroad near the station of Gallup. This mine is ventilated by an air shaft, and is operated by a slope 1,100 feet in length. The coal is hoisted by steam power, and has a capacity of about 300 tons per day.

RECORD OF INSPECTION.

January 7, 1899.—On this date I visited and inspected the mine known as the Thatcher mine. I measured 3,840 cubic feet of air entering the mine per minute, and measured 3,915 cubic feet of air returning per minute. I found the workings of this mine well ventilated and in good condition.

April 8, 1899.—I again inspected the Thatcher mine. I measured 5,040 cubic feet of air entering the mine per minute, and measured 5,460 cubic feet of air returning per minute. I found the workings of the mine in good condition.

GALLUP MINE.

[W. M. Weaver, general manager; Hugh McGinn, superintendent; P. O'Neil, pit boss.]

This mine is located about 3 miles northwest of the town of Gallup, Bernalillo County, N. Mex. Owned and operated by the Crescent Coal Company, and is situated on a spur about three miles in length, connecting with the Santa Fe Pacific Railroad near Gallup Station. Kind of coal, lignite; thickness of vein, 6 feet; total output, fiscal year ended June 30, 1899, 151,525 tons; estimated value of output, $212,000; depth of slope, 3,000 feet; value of improvements, this year, $4,117.43; average number of men employed inside, 250; average number of men employed outside, 20; average number of boys employed inside, 5; number of days mine was operated, 241; number of tons used at mine, 903; where coal is marketed, New Mexico, Arizona, Texas, California, and Old Mexico.

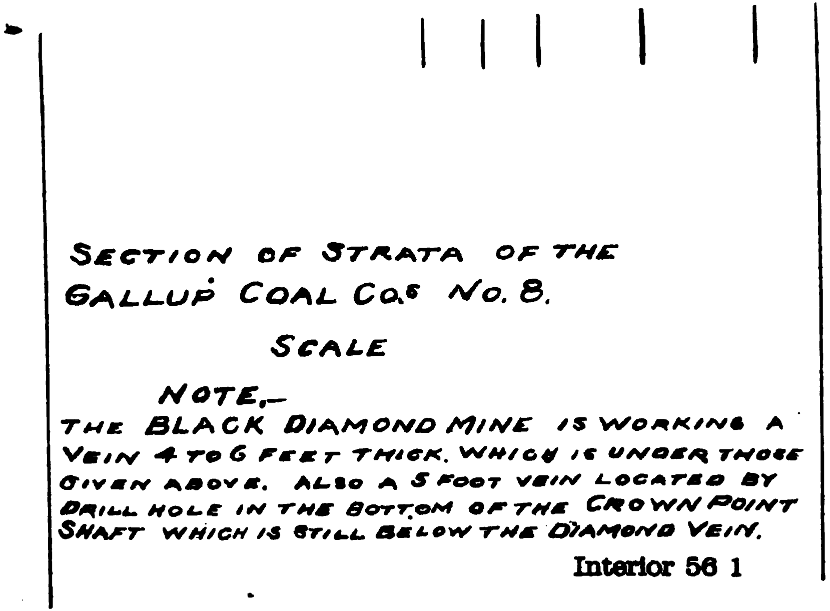
RECORD OF INSPECTION.

September 28, 1898.—On this date I inspected the mine known as the Gallup mine. The fan was running 103 revolutions per minute, and I measured 43,740 cubic feet of air entering the mine per minute, and measured 44,500 cubic feet of air returning per minute through the return air course. I found the miners working too far in advance of the air in the first right cross entry, and ordered the superintendent to have a crosscut (air way) driven from the face of the entry to the air course. The superintendent had the work of driving the crosscut commenced at once. Since my previous visit to this mine a new air shaft has been sunk, which connects with the face of No. 15 left entry and has greatly improved the ventilation throughout the workings on said entry.

November 18, 1898.—I again inspected the machinery belonging to the Gallup mine. I found one of the boilers in bad condition, and so informed the superintendent. I was informed by the superintendent that a new boiler had just arrived and men would be put to work to remove the old boiler, and the new one would be put in as soon as possible.

November 19, 1898.—I inspected the underground workings of the Gallup mine. The fan was running 60 revolutions per minute, and I measured 29,750 cubic feet of air entering the mine per minute, and measured 29,960 cubic feet of air returning per minute through the return air course. I found the mine well ventilated, and found the workings of the mine well timbered and in good condition.

January 10, 1899.—I again inspected the Gallup mine. The fan was running 85 revolutions per minute, and I measured 46,200 cubic feet of air entering the mine per minute and measured 47,800 cubic feet of air returning per minute. I found the ven-



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SCALE

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tilation good throughout the workings of the mine, and found the workings well timbered and in good condition.

April 12, 1899.—I again inspected the Gallup mine. I measured 27,400 cubic feet of air entering the mine per minute. I then inspected the workings of the mine and found them in good condition. The mine was not being operated on this date.

May 29, 1899.—I again inspected the Gallup mine. The fan was running 90 revolutions per minute, and I measured 33,000 cubic feet of air entering the mine per minute. I then inspected No. 11 right entry, No. 1 straight entry, No. 1 left entry, and No. 1 cross entry. I found the air measurements to be as follows: Cubic feet of air traveling per minute in No. 1 straight entry, 7,400; cubic feet of air traveling per minute at face of No. 1 straight entry, 1,400; No. 1 cross entry, 5,080 cubic feet; intake to No. 1 left entry, 10,500 cubic feet; last crosscut near face of No. 1 left entry, 1,200 cubic feet. I found considerable coal dust in the entries and ordered it loaded into pit cars and hauled out of the mine.

May 30, 1899.—I inspected the machinery belonging to the Gallup mine and found the same in good condition.

SUNSHINE MINE.

[Hugh McGinn, superintendent; W. M. Weaver, general manager.]

This mine is located about 1½ miles north of the town of Gallup, Bernalillo County, N. Mex. Owned and operated by the Crescent Coal Company. Kind of coal, lignite; thickness of vein, 5 feet; total output, fiscal year ended June 30, 1899, 27,723 tons; estimated value of output, $39,000; depth of slope, 2,100 feet; value of improvements this year, not given; average number of men employed inside, 120; average number of men employed outside, 5; number of days mine was worked during year, 154; where coal is marketed, New Mexico, California, and Arizona; number of tons used at mine, 709.

This mine is located on a railroad spur 1½ miles in length, connecting with the Santa Fe Pacific Railway near Gallup Station. Is operated by a slope and ventilated by a 12-foot Crawford & McCrimmon fan. This mine has not been operated since February 15, 1899.

RECORD OF INSPECTION.

September 27, 1898.—On this date I inspected the mine known as the Sunshine mine. The fan was running 85 revolutions per minute, and I measured 23,520 cubic feet of air entering the mine per minute and measured 24,240 cubic feet of air returning per minute. At the time of my visit to the mine a shaft had been raised from the Sunshine vein of coal to the Crown Point vein, a distance of 33 feet, making connection between the two veins. A good ladder way was placed in the shaft, thus making a good traveling way for the miners. I found the workings of the mine well ventilated and in good condition.

November 14, 1898.—I again inspected the mine known as the Sunshine mine. The fan was running 80 revolutions per minute, and I measured 28,800 cubic feet of air entering the mine per minute and measured 30,240 cubic feet of air returning through the return air course. I found the miners in Nos. 3 and 4 rooms on the north entry working in advance of the air, and ordered the pit boss to have a crosscut (air way) driven between the rooms, so as to give the air a chance to circulate up to the face of the room and give the miners good fresh air in which to work; otherwise I found the workings of the mine in good condition.

January 9, 1899.—I again inspected the Sunshine mine. The fan was running 72 revolutions per minute, and I measured 25,600 cubic feet of air entering the mine per minute and measured 27,840 cubic feet of air returning per minute. I then inspected the workings of the mine, and found the ventilation good throughout the workings. I found a set of timbers in the slope broken and ordered them to put in a new set; otherwise the mine was in good condition.

April 15, 1899.—I again inspected the Sunshine mine. I inspected the air courses and hauling roads and found the same in good condition. On this date the mine was not being operated, and I was informed by the superintendent that the mine was closed down on February 15. I then informed the superintendent to keep the traveling way open between the Sunshine and Crown Point mines, so that in case that anything should happen to the Crown Point shaft, the miners could come through the shaft connecting the Sunshine and Crown Point mines and come out on the Sunshine slope.

CROWN POINT MINE.

[Hugh McGinn, superintendent: W. M. Weaver, general manager.]

This mine is located about 3 miles in a northerly direction from the town of Gallup, Bernalillo County, N. Mex. Owned and operated by the Crescent Coal Company. Kind of coal, lignite; thickness of vein, 3 feet 6 inches to 5 feet; total output, fiscal year ended June 30, 1899, 45,490 tons; estimated value of output, $63,700; depth of shaft, 225; value of improvements this year, not given; average number of men employed inside, 110; average number of men employed outside, 10; average number of boys employed inside, 3; number of days mine worked this year, 239; where coal is marketed, New Mexico, Arizona, and California.

This mine is located on a railroad spur 3 miles in length, connecting with the Santa Fe Pacific Railway near Gallup Station. Is operated by a double compartment shaft 225 feet deep; capacity, about 250 tons per day; ventilated by a 12-foot Crawford & McCrimmon fan and an air shaft.

RECORD OF INSPECTION.

September 24, 1898.—On this date I inspected the machinery belonging to the Crown Point mine. I found the hoisting engine, boilers, ropes, and cages in good condition. On this date the mine was not being operated.

November 17, 1898.—I again inspected the Crown Point mine. The fan was running 80 revolutions per minute, and I measured 15,510 cubic feet of air entering the mine per minute, and measured 16,200 cubic feet of air returning per minute. I found the ventilation very good throughout the workings of the mine. I found the traveling road leading to the escape shaft in bad condition, caused by rock falling from the roof of the roadway, and I ordered the pit boss to have the traveling road cleared of all falls of rock and to keep said traveling road in good condition at all times. The pit boss informed me that the work would be commenced at once and continued until the falls of rock were all removed; otherwise I found the mine in good condition.

January 11, 1899.—I again inspected the Crown Point mine. The fan was running 70 revolutions per minute, and I measured 16,000 cubic feet of air entering the mine per minute, and measured 16,800 cubic feet of air returning per minute. I found very little air traveling at the working faces of No. 7 and 8 entries, and ordered the pit boss to have all stoppings along the line of said entries made air-tight, so as to force the air up to the face of the entries. The pit boss informed me that he would have the work commenced on that night and would continue the work until the air was forced up to the face of the entries.

April 14, 1899.—I again inspected the Crown Point mine. The fan was running 60 revolutions per minute, and I measured 18,400 cubic feet of air entering the mine per minute. I then inspected the workings of the mine and found the roadway leading to the escape shaft in bad condition, and ordered said roadway cleared of all falls of rock. The pit boss informed me that the work would be commenced at once. The mine was not being operated on this date.

May 27, 1899.—I again inspected the Crown Point mine. The fan was running 60 revolutions per minute, and I measured 7,150 cubic feet of air entering the mine per minute, and measured 7,650 cubic feet of air returning per minute. I then inspected the workings of the mine, and found some water in the main air course and ordered it pumped out. I also ordered the fan speeded up to 80 revolutions per minute.

CATALPA MINE.

[Hugh McGinn, superintendent; W M. Weaver, general manager.]

This mine is located about 3 miles in a southeasterly direction from the town of Gallup, Bernalillo County, N. Mex. Owned and operated by the Crescent Coal Company. Kind of coal, lignite; thickness of vein, 6 feet; total output, fiscal year ended June 30, 1899, 58,061 tons; estimated value of output, $81,280; depth of slope, 1,000 feet; value of improvements (total), $10,039.84; average number of men employed inside, 100; average number of men employed outside, 5; number of days mine was operated, 236; where coal is marketed, New Mexico, Arizona, and California.

This mine is situated on a railroad spur, 3 miles in length, connecting with the Santa Fe Pacific Main Line near Gallup Station, and with the development work done last year has a capacity of about 700 tons per day, and is ventilated by a furnace. This mine was operated 236 days this year as against 46 days last year.

RECORD OF INSPECTION.

September 23, 1898.—On this date I inspected the mine known as the Catalpa mine. I measured 8,400 cubic feet of air entering the mine per minute and measured 8,640 cubic feet of air returning per minute I found the workings of the mine well ventilated and found the mine in good condition.

November 15, 1898.—I again inspected the Catalpa mine. I measured 10,150 cubic feet of air entering the mine per minute and measured 11,520 cubic feet of air returning per minute. I found the ventilation good throughout the workings of the mine and found the workings of the mine well timbered and in good condition.

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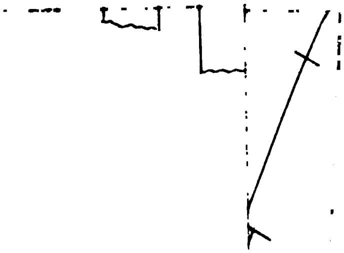

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January 5, 1899.—I again inspected the Catalpa mine. I measured 8,910 cubic feet of air entering the mine per minute and measured 9,600 cubic feet of air returning per minute. I then inspected the workings of the mine and found the miners in the first right entry working too far in advance of the air and ordered a crosscut (air way) driven from the face of the entry to the main air course. The pit boss informed me that the work would be commenced at once.

April 10, 1899.—I again inspected the Catalpa mine. I measured 7,980 cubic feet of air entering the mine per minute. I then inspected the workings of the mine and found the workings in good condition. I found very few props on hand at the mine and ordered the pit boss to keep plenty of props in readiness for the miners.

May 25, 1899.—I again inspected the Catalpa mine. I measured 6,300 cubic feet of air entering the mine per minute and measured 6,730 cubic feet of air returning per minute. I found the ventilation good throughout the workings of the mine. I found some loose rock in the roof of the main slope and ordered it taken down and the place timbered. Otherwise I found the mine in good condition.

The Gallup, Sunshine, Crown Point, and Catalpa mines are all owned and operated by the Crescent Coal Company, and the total number of tons produced by the said four mines during the fiscal year ended June 30, 1899, is 282,799; the total estimated value of this output is $395,980. At the Crown Point and Catalpa mines slack is used for steam purposes, and at the Gallup and Sunshine mines 1,612 tons of coal was used during the fiscal year for steam purposes. The workings of the Crescent Coal Company's mines are free from fire damp; the coal is a soft lignite, good for steam and domestic purposes.

W. A. CLARK COAL MINE.

[W. L. Bretherton, agent.]

This mine is located about 5 miles west of the town of Gallup, Bernalillo County, N. Mex. Owned and operated by W. A. Clark. Kind of coal, lignite; thickness of vein, 5 to 7 feet; total ouput, fiscal year ended June 30, 1899, 46,986 tons; estimated value of output, $73,158.62; depth of slope, 1,500 feet; value of improvements, not given; average number of men employed inside, 60; average number of men employed outside, 30; number of days mine was operated, 270; number of tons used at mine, 800; where coal is marketed, Arizona and California.

This mine is situated on a spur connecting with the Santa Fe Pacific Railway, about 4 miles west of Gallup Station. Is operated by a slope 1,500 feet in length and has a capacity of about 500 tons per day. This property consists of 1,280 acres of coal land, which carries several seams of coal, only one seam being worked at present. The workings are dry and free from gas or fire damp. The coal is a soft lignite, good for steam and domestic purposes.

MACHINERY AND EQUIPMENTS.

This mine is equipped with two 100-horsepower boilers, one 150-horsepower engine, and one 25-horsepower engine, 2 electric Westinghouse generators, furnishing a 250-volt current; 1 No. 6 Connerville blower to carry off coal slack, 1 electric and 1 steam deep-well pump, to furnish the necessary water for the town of Clarkville, located at the mines, and for steam use. The mining is done by 2 electric undercutting machines, which cut 5 and 6 feet deep, and 1 rib-shearing machine, made by the Link-Belt Machinery Company; also 1 Morgan-Gardiner electric drill for shooting coal down.

Haulage is done, first, by horses entirely, and by a link-belt 10-ton electric motor, which hauls out on the tipple over a 5 per cent grade. The tipple is the latest Mitchell patent automatic dumper. The pit scales are 10 feet long, large and strong, for pit cars of Eastern make. This mine is equipped with shaking screens, which are used for assorting the coal into 4 different sizes, as desired, and for thoroughly cleaning out all slack.

VENTILATION.

This mine is ventilated by various air shafts raised through from the vein of coal to the surface, which so far has proved very successful.

IMPROVEMENTS.

The improvements consist of 50 dwellings, mostly built of adobe, and are used for residences, which are occupied by the employees of the company; also, a large power house. The store building is built of brick, being a 2-story building, is large and commodious, with a good, deep basement and contains a general stock of merchandise for the town; also, a large boarding house run by the company for the convenience of its employees. The company is erecting a brick building, which will be supplied with literature and used for a reading room. A large schoolhouse is located in the town, in which school is held during the greater portion of each year, the average attendance being 40 for the last scholastic year.

RECORD OF INSPECTION.

September 22, 1898.—On this date I inspected the mine known as the W. A. Clark mine. I measured 6,720 cubic feet of air entering the mine per minute, and measured 6,840 cubic feet of air returning per minute. I found the mine well ventilated and in excellent condition.

November 12, 1898.—I again inspected the W. A. Clark mine. I measured 7,560 cubic feet of air entering the mine per minute, and measured 7,770 cubic feet of air returning per minute. I found the mine well ventilated and found the workings in good condition.

January 6, 1899.—I again visited the mine known as the W. A. Clark mine. I measured 4,800 cubic feet of air entering the mine per minute, and measured 5,440 cubic feet of air returning per minute. The ventilation and workings of the mine were in good condition.

April 7, 1899.—I again visited and inspected the W. A. Clark mine. I measured 4,320 cubic feet of air entering the mine per minute, and measured 4,680 cubic feet of air returning per minute. The mine was in good condition.

May 24, 1899.—I again inspected the mine known as the W. A. Clark mine. I measured 11,200 cubic feet of air entering the mine per minute, and measured 12,000 cubic feet of air returning per minute. I found the mine well ventilated and in good condition.

STEWART MINE.

[William Stewart, manager.]

This mine is located one-half mile north of the town of Gallup, Bernalillo County, N. Mex.; owned by the Santa Fe Pacific Railway Company, and is operated under lease by William Stewart. Kind of coal, lignite; thickness of vein, 6 feet; total output, fiscal year ended June 30, 1899, 2,000 tons; estimated value of output, $3,000; value of improvements, $2,000; depth of slope, 400 feet; average number of men employed inside, 6; average number of men employed outside, 3; number of days mine worked during year, 200; where coal is marketed, Arizona, California, and New Mexico.

This mine is a new mine, which has been operated in a small way since July 1, 1898. The coal is hauled in wagons to Gallup Station, where it is shipped to points in Arizona, California, and New Mexico, and is also sold to the local trade in the town of Gallup. The mine is ventilated by an air shaft and has a capacity of about 50 tons per day.

RECORD OF INSPECTION.

November 11, 1898.—On this date I visited and inspected the mine known as the Stewart mine. I found the workings of the mine in good condition. At the time of my visit only 6 miners were employed in the mine.

January 14, 1899.—I again visited and inspected the mine known as the Stewart mine. I measured 2,160 cubic feet of air entering the mine per minute, and measured 2,240 cubic feet of air returning per minute. I found the workings of the mine well ventilated and found the mine in good condition.

April 6, 1899.—I again inspected the Stewart mine. I measured 2,100 cubic feet of air entering the mine per minute. I then inspected the underground workings of the mine, found the ventilation good, and found the mine in good condition.

ROCKY CLIFF MINE.

[Stephen Canavan, general manager.]

This mine is located about 2 miles in an easterly direction from the town of Gallup, Bernalillo County, N. Mex. Owned and operated by Stephen Canavan. Kind of coal, lignite; thickness of vein, 4 feet and 6 inches; total output, fiscal year ended June 30, 1899, 5,000 tons; estimated value of output, $7,500; depth of slope, 900 feet; total value of improvements, $6,000; average number of men employed inside, 8; average number of men employed outside, 2; number of days mine was operated during year, 200; where coal is marketed, California, and Gallup, N. Mex.

This mine is located on a railroad spur connecting with the Santa Fe Pacific Railway, near Gallup Station. The mine is ventilated by a furnace and has a capacity of 150 tons per day.

RECORD OF INSPECTION.

September 29, 1898.—On this date I inspected the mine known as the Rocky Cliff mine. At the time of my visit to the mine there were only five miners employed therein. I inspected the air course and all the underground workings and found the mine in fair working condition.

November 10, 1898.—I again inspected the Rocky Cliff mine. I measured 4,320 cubic feet of air entering the mine per minute, and measured 4,500 cubic feet of air returning per minute. I found the workings of the mine in good condition.

January 4, 1899.—I again inspected the Rocky Cliff mine. I measured 3,000 cubic feet of air entering the mine per minute, and measured 3,255 cubic feet of air returning per minute. I found the workings of the mine in good condition.

April 11, 1899.—I again inspected the Rocky Cliff mine. I measured 2,050 cubic feet of air entering the mine per minute. I then inspected the workings of the mine; found the workings well ventilated and in good condition.

May 23, 1899.—I again inspected the Rocky Cliff mine. I measured 1,750 cubic feet of air entering the mine per minute, and measured 1,925 cubic feet of air returning per minute. I found the workings of the mine in good condition.

LINCOLN COUNTY.

OLD ABE COAL MINE.

This is a new mine located near White Oaks, Lincoln County, N. Mex. Owned and operated by the Old Abe Company, of which John Y. Hewitt is president, William Watson, vice-president; Levin W. Stewart, secretary. Kind of coal, bituminous; thickness of vein, average, 3½ feet; total output, fiscal year ended June 30, 1899, 1,469 tons: estimated value of output, $3,672.50; depth of slope, 250 feet; value of improvements, $1,100; average number of men employed inside, 3; average number of men employed outside, 1; number of days mine was operated, 172; where coal is marketed, at the town of White Oaks, N. Mex.

Work was commenced on this mine on December 19, 1898, and owing to the location of the mine, being a great distance from the railroad and only a few men being employed, I did not deem it necessary to inspect the mine. I received the above report from the secretary of the company.

NEW MEXICO FUEL COMPANY.

[Mines at Gray, N. Mex.; general offices, Alamogordo, N. Mex.]

The coal fields under the management of the New Mexico Fuel Company are situated in Lincoln County, N. Mex., 165 miles from El Paso, Tex., along the line of the El Paso and Northeastern Railroad, which will be completed to the mines on or about October 1. On July 8, 1899, I addressed a letter to W. A. Hawkins, esq., of El Paso, Tex., attorney for the New Mexico Fuel Company, requesting him to forward me a report of the coal mines being opened by the company. In reply to this letter I received the following report from T. L. Welles, superintendent:

GRAY, N. MEX., *July 14, 1899.*

DEAR SIR: Your esteemed favor of the 8th instant to W. A. Hawkins, esq., of El Paso., Tex., has been forwarded to me as superintendent of the New Mexico Fuel Company, which is the title of the company opening the mines referred to.

On April 1 of the current year the company started the Salado Camp, and on April 3 began work on No. 1 slope on the Akers or lower seam of coal. The size of the timbers in this slope are in the clear 8 feet cap, 6 feet 2 inches legs on a 2-inch batter, giving 6 feet clear of tie, with 10 feet at bottom. Gauge of track is 36 inches. The average section of seam so far is 4 feet 6½ inches, of which 7 inches is a fire-clay slate, leaving 3 feet 11½ inches of coal. The slope has been driven a distance of 345 feet from the apex, of which 22 feet is open cut and 140 feet double timbered.

The average pitch of seam is 14 degrees. An air shaft 10 by 12 feet was sunk down 34 feet to the coal, at a distance of 155 feet from the mouth of the slope, and has been connected with the slope air ways by a larger air passage. The three-entry system is the one in use, the left-hand air way having a large air bridge to connect it with the one on the right, which runs up to the air shaft. At present a small furnace is in use at the bottom of the shaft, and furnishes abundant air at all times. A fan is on the ground ready for use when occasion may require.

The coal is of the coking variety, and shows the following analysis:

Water	0.775
Volatile matter	41.250
Fixed carbon	46.950
Ash	11.025
	100.000
Sulphur	.735

This was from a sample taken from the whole height of the seam.

The latter part of June the company started a pair of 10 by 10 inch friction hoists, which are doing very satisfactory work, and will be amply sufficient for sinking purposes. The company has no other outside improvements but a small carpenter and blacksmith shop, with the exception of a pipe line of 3 and 2 inch pipe, which brings a supply of water from springs in the Carracita Canyon, at a point 1¼ miles above the mine. At present the company is working 17 men, including a foreman and night-shift boss, in this slope, and has been driving on double shift from the start.

On June 1 the company started slope No. 2 on the Ayers or upper seam and distant about 3,000 feet from No. 1 slope. The company expect to bring the coal from this mine to the tipple at No. 1 slope by means of a tramroad and small locomotive. No. 2 slope is now down 140 feet from the apex, of which 92 feet is double timbered and the balance open cut, on a pitch of 14 degrees. Seam of coal at face shows 5 feet 7 inches, with 5 feet of fine coal. Sinking is carried on at this slope with a whim. In the near future sinking will be done with a hoisting engine and boiler.

The analysis, from a complete section of the vein, shows the following results:

Water	1.275
Volatile matter	38.225
Fixed carbon	47.100
Ash	13.400
	100.000
Sulphur	.645

The company is working 6 men and a foreman in this slope, besides 25 men employed in various capacities outside.

Mr. Hills, the geologist of the Colorado Fuel and Iron Company, who examined the property, constructed a coke oven of adobe bricks and coked some of the coal from the Akers seam, which gave the following analysis:

Water	1.450
Volatile matter	3.900
Fixed carbon	76.825
Ash	17.825
	100.000
Sulphur	.611

You ask for the valuation of our improvements, but, as I said above, the company has little as yet which could properly come under that head. The cost of the operation so far has been about $15,000, which includes a supply of tools sufficient to last some time, and also machinery which is not yet upon the ground. The company propose to erect a washer and a block of coke ovens as soon as practically can be done. In addition to this operation the company has a 200-foot proving slope down on the upper seam, at a point 3 miles below Malagra Hill, but did not find enough coal to warrant an operation.

When we get a map of our workings complete, shall take pleasure in sending you a copy.

Yours, very truly,

New Mexico Fuel Company,
T. L. Welles, *Superintendent.*

Mr. J. W. Fleming,
United States Mining Inspector, Silver City, N. Mex.

COLFAX COUNTY.

BLOSSBURG MINE.

[J. A. Wiggs, superintendent; J. Van Houten, vice-president; M. M. Walsh, pit boss.]

This mine is located at the town of Gardiner, Colfax County, N. Mex., and about 4½ miles in a westerly direction from the town of Raton, N. Mex., where the general offices of the company are located. Owned and operated by the Raton Coal and

Coke Company. Kind of coal, bituminous; thickness of vein varies from 6 to 8 feet; total output fiscal year ended June 30, 1899, 308,316 tons; estimated value of output this year not given; average number of men employed inside, 125; average number of men employed outside, including men employed on construction work, etc., 100; average number of boys employed inside, 15; length of new drift (main diagonal), 2,700 feet; number of days mine was operated, 300; where coal is marketed, New Mexico, Arizona, and Mexico; number tons of coal used at mine, 4,826 tons.

This mine is located on a branch of the Atchison, Topeka and Santa Fe Railroad, connecting with the main line at Dillon Station. This is the largest mine in the Territory, having a capacity of 1,500 tons per day. It is operated upon the double-entry system. Most of the coal is marketed on the New Mexico and Rio Grande divisions of the Atchison, Topeka and Santa Fe Railway Company, between Raton, N. Mex., and El Paso, Tex.; also on the Mexican Central Railway from El Paso, Tex., south, and on the Southern Pacific Railroad, from Deming, N. Mex., west.

RECORD OF INSPECTION.

September 17, 1898.—On this date I inspected the machinery belonging to the Blossburg mines. I found the machinery in good condition.

September 19, 1898.—On this date I inspected Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 right entries of the Blossburg mine No. 4 and the rooms thereon. I measured 49,550 cubic feet of air entering the mine per minute and measured 51,200 cubic feet of air returning per minute. I found the workings which I inspected well ventilated and in good condition.

September 20, 1898.—I continued my inspection of the Blossburg mine No. 4. I inspected Nos. 11 and 12 right entries and the rooms thereon. I found the ventilation good throughout the workings and found the working places in good condition.

October 19, 1898.—I inspected the mine known as the Blossburg mine No. 6. I measured 8,000 cubic feet of air entering the mine per minute. I then inspected all the working places in the mine. I found the roof of the straight entry in an unsafe condition, and ordered the pit boss to have said entry timbered with good substantial timbers.

October 20, 1898.—On this date I commenced my inspection of the Blossburg mine No. 4. I measured 39,480 cubic feet of air entering the mine per minute and measured 41,600 cubic feet of air returning per minute. I found the roof of No. 6 room on the second left entry in an unsafe condition and ordered the pit boss to have the loose rock taken down and the place timbered at once. The work was commenced and the pit boss assured me that the room would be made secure from all danger before he would allow the miners to work therein.

October 21, 1898.—I continued my inspection of the Blossburg mine No. 4. I inspected Nos. 5, 6, 7, and 8 right entries and No. 12 left entry and the workings thereon. I found the ventilation good throughout the working places. I found several rooms (which were not being worked) driven up a distance of over 200 feet without a crosscut and I ordered crosscuts driven every 100 feet in all rooms.

November 22, 1898.—I inspected the Blossburg mine No. 6. I measured 9,900 cubic feet of air entering the mine per minute. I then inspected the working places of the mine and found the workings well ventilated and in good condition.

November 23, 1898.—On this date I visited and inspected the mine known as the Blossburg mine No. 4. I measured 42,600 cubic feet of air entering the mine per minute, and measured 42,200 cubic feet of air returning per minute. I found the ventilation good throughout the workings of the mine, and found the mine well timbered and in good condition.

December 13, 1898.—I visited and inspected the machinery and boilers belonging to the Blossburg mines. I found the machinery in good condition.

December 14, 1898.—I inspected the mine known as the Blossburg mine No. 6. I measured 3,960 cubic feet of air entering the mine per minute. I then inspected the working places in the mine and found the workings well ventilated and in good condition.

December 15, 1898.—I inspected the mine known as the Blossburg mine No. 4. I measured 43,180 cubic feet of air entering the mine per minute and measured 45,360 cubic feet of air returning per minute. I then inspected the working places throughout the mine and found the mine well ventilated and the workings well timbered and in good condition.

January 18, 1899.—On this date I inspected the machinery belonging to the Blossburg mines and found the machinery in good condition.

January 19, 1899.—I visited and inspected the Blossburg mine No. 6. I measured 6,380 cubic feet of air entering the mine per minute. I then inspected the air courses and working places throughout the mine and found the workings in good condition.

January 20, 1899.—I inspected the Blossburg mine No. 4. I measured 40,820 cubic feet of air entering the mine per minute and measured 42,840 cubic feet of air returning per minute. I then inspected the workings of the mine; found the mine well ventilated and in good condition.

February 20, 1899.—I inspected the Blossburg mine No. 6. I measured 7,440 cubic feet of air entering the mine per minute. I then inspected the air courses and working places in the mine and found the workings well ventilated and in good condition.

February 21, 1899.—I inspected the mine known as the Blossburg mine No. 4. I measured 42,000 cubic feet of air entering the mine per minute. I then inspected the workings of the mine and found the workings well ventilated and in good condition.

March 15, 1899.—I visited the Blossburg mine No. 4 for the purpose of inspecting room No. 2 on the fourth right entry, where a fatal accident had occurred, causing the deaths of William Lipscomb and Juan M. Rivera. (See report of fatal accidents.)

March 16, 1899.—I inspected the Blossburg mine No. 4. I measured 32,760 cubic feet of air entering the mine per minute. I then inspected Nos. 7, 8, 9, 10, 11, and 12 right entries and the workings thereon. I found room No. 11 on the seventh right entry and room No. 8 on No. 8 right entry being worked without the use of timbers, and ordered said rooms timbered before any more mining was done therein; but as usual the miners wanted to load a few more cars of coal before they commenced timbering.

I informed them that the cause of a great many fatal accidents from falls of rock in mines was caused by the miners being too anxious to load another car or two of coal before securing their working places with timbers, and ordered them to either timber their working places at once or discontinue working in said places until such time as the places were timbered. They then commenced timbering the rooms.

March 17, 1899.—I continued my inspection of the Blossburg mine No. 4. I inspected Nos. 1, 2, 3, 4, 5, and 6 left entries and the workings thereon; also, Nos. 13 and 14 right entries. I found the roof at the face of No. 1 right entry in bad condition and had the work stopped until said place was timbered. Also found room No. 15 on No. 3 left entry in bad condition, and ordered said room timbered before any more mining was done in the room. The work of timbering was commenced at once.

March 18, 1899.—I inspected the mine known as the Blossburg mine No. 6. I measured 9,280 cubic feet of air entering the mine per minute, and then inspected the workings of the mine and found the workings in good condition. I also took air measurements throughout the workings of the Blossburg mines Nos. 4 and 6, and found the air measurements to be as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Intake in main entry	7,680
Intake in No. 6 mine	9,280
Air traveling around face of Nos. 7, 8, 9, 10, 11, and 12 right entries, where pillars were drawn	18,400
Last crosscut between Nos. 14 and 15 left entries	13,200
Intake on No. 12 left entry	10,800
Air traveling around Nos. 6, 7, 8, and 9 right entries, where pillars are drawn	15,180
Intake on old Blossburg hauling entry	5,000
Intake to Nos. 7 and 8 right entries	12,240
Last crosscut between first and second left entries	8,320
Last crosscut between third and fourth left entries	3,600
Last crosscut between fifth and sixth left entries	3,500
Last crosscut at face of main entry	6,720
Air traveling in No. 10 right entry	8,285
Face of No. 13 right entry	8,050
Return at fan	33,600

April 18, 1899.—I inspected the mine known as the Blossburg mine No. 6. I measured 7,680 cubic feet of air entering the mine per minute. I then inspected the workings of the mine and found the workings in fair condition.

April 19, 1899.—I inspected the Blossburg mine No. 4. I measured 40,400 cubic feet of air entering the mine per minute. I then inspected the workings of the mine and found the workings in fair condition. I also inspected the machinery belonging to the mines and found the machinery in good condition.

May 16, 1899.—I visited the Blossburg mine No. 4. Just before my arrival at the mine Thomas Hermann, a miner, was killed on entry No. 20 by electric wires. (See fatal accidents reports.)

May 17, 1899.—I inspected the Blossburg mine No. 4. I inspected No. 12 left entry, also the entry known as the Blossburg main, and the workings thereon, and took air measurements. I measured 54,040 cubic feet of air entering the mine per minute and measured 56,700 cubic feet of air returning per minute. I measured 5,400 cubic feet of air traveling per minute in No. 12 left entry, and 2,800 cubic feet of air

traveling the Blossburg main entry. I found the workings, which I inspected, in good condition.

May 18, 1899.—I continued my inspection of the Blossburg mine No. 4. I inspected Nos. 1, 2, 3, and 4 left entries and the workings thereon. I measured 13,120 cubic feet of air traveling per minute at the face of Nos. 1 and 2 left entries, and measured 4,200 cubic feet of air traveling per minute in the last crosscut between Nos. 3 and 4 left entries. I found the workings well ventilated. I found the roof of No. 15 room, on the 4th left entry, in a dangerous condition on account of the rock being loose and not being properly timbered, and ordered work stopped in said room until the room was properly timbered. The work was stopped and the timbermen were ordered to timber the room as soon as possible.

May 19, 1899.—On this date I inspected Nos. 1, 2, 3, 4, 13, and 14 left entries, also Nos. 6, 7, 8, 9, 10, 11, 12, 13, and 14 right entries of the Blossburg mine No. 4, and the workings thereon. I found the workings in good condition. I ordered the pit boss to keep a close watch on the miners and see that they kept their places well timbered.

June 21, 1899.—I inspected the machinery belonging to the Blossburg mines, and found the machinery in good condition.

June 22, 1899.—I inspected the Blossburg mine No. 6. I measured 15,750 cubic feet of air entering the mine per minute, and measured 6,750 cubic feet of air traveling through the last crosscut at the face of the main and back entries. I found the workings well ventilated. I found a place in the roof of the main entry in a dangerous condition and ordered the place timbered. The timbering was commenced at once.

June 23, 1899.—I inspected the Blossburg mine No. 4. I took air measurements throughout the workings, which I found to be as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Last crosscut at face of Nos. 1 and 2 left entries	15,600
Last crosscut between Nos. 3 and 4 left entries	12,000
Last crosscut between Nos. 5 and 6 left entries	3,800
Last crosscut at face of diagonal entries	8,910
Air traveling around Nos. 7, 8, 9, 10, 11, 12, 13, and 14 left entries, where the pillars were drawn	10,060
Intake on No. 11 left entry	9,600

I found the roof of No. 5 room, on the 12th right entry, and No. 13 room, on No. 11 right entry, in a dangerous condition, and ordered said rooms timbered.

June 26, 1899.—I again visited the Blossburg mine No. 4 for the purpose of ascertaining if the timbering had been done in room No. 5, on the 12th right entry, and No. 13 room, on the 11th right entry, according to my instructions of June 23. I found that said rooms had been timbered.

The above report on the Blossburg mine includes No. 4 and No. 6 mines, which are practically one mine and on the same vein, owned and operated by the same company. All haulage is done through the main diagonal entry, which is 2,700 feet in length.

DESCRIPTION OF THE PROPERTY OF THE RATON COAL AND COKE COMPANY, INCLUDING THE NEW ELECTRIC PLANT.

Lands.—There are 10,000 acres of coal land embraced in the property of the company, in which there are several seams of coal. At present, however, only one seam of coal is being worked by two mines, the Blossburg No. 4 and No. 6, both of which are drift mines on the same vein, and the workings of which are connected. The coal vein averages from 6 to 8 feet in thickness; and the mines are dry and comparatively free from gas. The coal is an excellent quality of bituminous coal.

Coke ovens.—There are at present 76 beehive coke ovens of standard size, 13 feet in diameter. There is a peculiar feature in connection with the ovens, which is quite an innovation in the West, and that is the use of a hot-air flue located between the ovens, which are double-row batteries, and which flue enables the company to economize and utilize the waste heat for generating steam. The waste heat is conducted by means of this flue and smokestacks on the boiler to the boiler plant, midway between the two batteries of ovens, and generates a large proportion of the steam power required for the operation of the electric plant.

Power.—The mines are equipped with 3 generators, aggregating 500 horsepower, using a 500-volt current. The plant is of the latest improved type, modern in every respect.

Mining.—Mining is done by a plant of 8 Morgan-Gardiner electric mining machines, undercutting the coal 7 feet in depth and 44 inches wide, 4 inches high. The time for cutting requires about four and a half minutes. Hauling from the partings in the mine is done by 3 electric locomotives, which are in very successful operation, economizing cost of production and facilitating a ready increase of output at all times.

Washing plant.—The washing plant, which consisted of two (400 tons capacity each) Robinson-Wiggs coal washers, with all the latest improved appliances for washing and handling 800 tons of coal per day, also the tipple, which was of the latest improved construction, using automatic dumping apparatus and other minor appliances, was burnt to the ground on the 2d day of September, 1898, causing a heavy loss to the company.

Trolley line.—There is now about 9,000 feet of trolley line in use, 3,000 feet of which runs from the mouth of the mine to the tipple. The trolley line for the hauling system is of No. 2/o hard-drawn copper. All partings along the hauling system inside of the mine are furnished with electric lights. The line material was all furnished by the Ohio Brass Company, of Mansfield, Ohio. All the machinery, large and small, is driven by electric motors.

Ventilation.—The mines are ventilated at present by one 25-foot diameter Guibal mine fan, driven by electric motor. The mine also has a 22-foot Guibal fan, which the company will use as a reserve, so that the mine will at all times be provided with ample ventilating capacity.

Machine shop.—A large machine shop, with modern tools, has been erected for the purpose of manufacturing and repairing all the machinery in use on the property.

Houses.—During the last fiscal year ended June 30, 1899, the company erected 50 new dwelling houses, a large hotel and hospital, which, together with the 134 dwelling houses already erected and in use by the company, afford ample accommodation for all employees.

Store.—A large brick store, 1½ stories, 75 by 120 feet, which is well supplied with merchandise, is also owned by the company.

Summary.—The property now being operated is thoroughly modern and up to date, the most complete of its kind in the West. All labor-saving appliances and devices have been introduced, which are now in successful operation at the plant, that are now known in the mining trade.

SMITH MINE NO. 2.

[Albert G. Shaw, lessee and general manager.]

This mine is located about 1 mile north of the town of Raton, Colfax County, N. Mex., owned by the Maxwell Land Grant Company, and is operated under lease by Albert G. Shaw. Kind of coal, bituminous; thickness of vein, 4 feet; total output fiscal year ended June 30, 1899, 3,631 tons; estimated value of output this year, $6,364.25; length of drift, 300 feet; value of improvements this year, $150; average number of men employed inside, 6; average number of boys employed inside, 2; number of days mine worked, 290; where coal is marketed, town of Raton, N. Mex.

The product of this mine is hauled in wagons to the town of Raton, N. Mex., and retailed to the domestic trade. Capacity is about 20 tons per day. This mine is ventilated by a furnace.

RECORD OF INSPECTION.

October 18, 1898.—On this date I inspected the Smith mine No. 2. I measured 2,700 cubic feet of air entering the mine per minute and measured 2,850 cubic feet of air returning per minute. I found the workings of the mine in good condition.

December 12, 1898.—I again inspected the Smith mine No. 2. I measured 1,520 cubic feet of air entering the mine per minute and measured 1,650 cubic feet of air returning per minute. I found the workings of the mine in good condition.

February 16, 1899.—I again inspected the Smith mine No. 2. I measured 2,100 cubic feet of air entering the mine per minute and measured 2,170 cubic feet of air returning per minute. I found the workings of the mine in good condition.

March 20, 1899.—I again inspected the Smith mine No. 2. I found the workings of the mine in good condition.

May 20, 1899.—I again inspected the Smith mine No. 2. I measured 1,320 cubic feet of air entering the mine per minute. I found the workings of the mine in good condition.

July 28, 1899.—I again inspected the Smith mine No. 2. I measured 4,100 cubic feet of air entering the mine per minute and measured 2,205 cubic feet of air returning per minute. I found the workings of the mine in good condition.

MESA MINE.

This mine is located about 7 miles east of Raton, Colfax County, N. Mex., and is now operated by the Honeyfield Brothers. Kind of coal, bituminous; thickness of vein, 5 feet; total output fiscal year ended June 30, 1899, 1,100 tons. Estimated value of output this year, $1,925; average number of men employed at mine, 5; length of drift, 400 feet; total value of improvements, $1,000; mine in operation, 210 days; where coal is marketed, town of Raton, N. Mex.

The product of this mine is hauled in wagons to the town of Raton, N. Mex., and retailed to the domestic trade. Capacity, about 20 tons per day. Ventilation, natural.

RECORD OF INSPECTION.

October 22, 1898.—On this date I inspected the Mesa mine. I inspected the underground workings of the mine and found the workings in good condition.

December 16, 1898.—I again inspected the Mesa mine. I measured 1,500 cubic feet of air entering the mine per minute and measured 1,560 cubic feet of air returning per minute. I found the ventilation good throughout the workings of the mine and found the workings well timbered and in good condition.

LATAMORE MINE.

[G. B. Latamore, general manager.]

This is a new mine located about 6½ miles east of the town of Raton, Colfax County, N. Mex., owned and operated by G. B. Latamore.

April 21, 1899.—On this date I inspected the mine known as the Latamore mine. At the time of my visit a drift had been driven in on a vein of coal a distance of 300 feet and had one room turned. The vein of coal is 5 feet in thickness and is a fine quality of bituminous coal. I found the mine without a second opening and ordered the general manager to have the second opening made so that air could circulate up to the face of the workings. The general manager informed me that a second opening would be made as soon as possible.

June 27, 1899.—I again inspected the mine known as the Latamore mine. The second opening was not completed. I found the workings of the mine in good condition.

The product of this mine is hauled in wagons to the town of Raton, N. Mex., and retailed to the domestic trade. There are three men employed, and the mine produced during the fiscal year about 600 tons.

RIO ARRIBA COUNTY.

MONERO MINE NO. 1.

[J. H. Crist, general manager; E. A. Fiske, president.]

This mine is located at Monero, Rio Arriba County, N. Mex., on the Denver and Rio Grande Railroad. Owned and operated by the Rio Arriba Coal Company. Kind of coal, bituminous; thickness of vein, 3 feet 10 inches; total output fiscal year ended June 30, 1899, 30,000 tons; estimated value of output, $37,500; depth of slope, 1,700 feet; total value of improvements, $13,000; average number of men employed inside, 24; average number of men employed outside, 8; number of days mine was operated, 295; where coal is marketed, Denver and Rio Grande Railroad Company.

RECORD OF INSPECTION.

September 12, 1898.—On this date I inspected the mine known as the Monero mine No. 1. I measured 8,000 cubic feet of air entering the mine per minute and measured 8,400 cubic feet of air returning per minute. I found the miners working too far in advance of the air in No. 1 left entry, and ordered a crosscut (air way) driven at the face of the entry, so as to force the air to the face of the workings.

September 14, 1898.—I again visited the Monero mine No. 1 to ascertain if the crosscut had been driven at the face of No. 1 left entry, as per my instructions of September 12. I found that my instructions had been complied with and the crosscut had been driven.

October 28, 1898.—I again inspected the Monero mine No. 1. I measured 7,600 cubic feet of air entering the mine per minute and measured 8,000 cubic feet of air returning per minute. I found the workings of the mine well ventilated and in good condition.

December 9, 1898.—I again inspected Monero mine No. 1. I measured 8,800 cubic feet of air entering the mine per minute and measured 9,200 cubic feet of air returning per minute. I found the air course on the right of the slope in bad condition and ordered the air course cleared of all falls of rock. The work of clearing the air course was commenced at once. I then took air measurements at the bottom of the slope and measured 2,500 cubic feet of air traveling per minute.

February 13, 1899.—I again inspected the Monero mine No. 1. I measured 4,550 cubic feet of air entering the mine per minute and measured 4,940 cubic feet of air returning per minute. I found very little air traveling at the face of the first left entry and ordered a crosscut driven from the face of the entry to the main air course.

June 16, 1899.—I again visited the Monero mine No. 1. I measured 6,300 cubic feet of air entering the mine per minute and measured 6,650 cubic feet of air returning per minute. I also measured 4,500 cubic feet of air per minute traveling in the air course leading to the first left entry, which was the only place being worked upon the above date. I found the ventilation good throughout the workings. I found some of the miners working in their rooms without using any timbers, and I instructed the miners to keep their working places well timbered.

MONERO MINE NO. 2.

[J. H. Crist, general manager; E. A. Fiske, president.]

This mine is located at Monero, Rio Arriba County, N. Mex., on the Denver and Rio Grande Railroad. Owned and operated by the Rio Arriba Coal Company. Kind of coal, bituminous; thickness of vein, 3 feet 6 inches; total output fiscal year ended June 30, 1899, 9,000 tons; estimated value of output, $13,600; depth of slope, 700 feet; value of improvements, $2,000; average number of men employed inside, 9; average number of men employed outside, 4; average number of boys employed, 2; number of days mine was operated, 240; number of tons used at mine, 250; where coal is marketed, for commercial uses along line of Denver and Rio Grande Railroad.

RECORD OF INSPECTION.

September 13, 1898.—On this date I inspected the mine known as the Monero mine No. 2. I measured 2,340 cubic feet of air entering the mine per minute and measured 2,400 cubic feet of air returning per minute. I found the workings of the mine in good condition

October 26, 1898.—I again inspected the Monero mine No. 2. I measured 2,660 cubic feet of air entering the mine per minute and measured 2,680 cubic feet of air returning per minute. I found the workings of the mine well ventilated and in good condition.

December 8, 1898.—I again inspected the Monero mine No. 2. I measured 4,000 cubic feet of air entering the mine per minute and measured 4,100 cubic feet of air returning per minute. I also measured 2,500 cubic feet of air per minute traveling at the bottom of the slope. I found the mine well ventilated and in good condition.

February 11, 1899.—I again inspected Monero mine No. 2. I measured 2,700 cubic feet of air entering the mine per minute and measured 2,850 cubic feet of air returning per minute. I found the return air course in bad condition, caused by falls of rock, and ordered the air course cleared of all falls of rock; otherwise the mine was in good condition.

June 15, 1899.—I again inspected the Monero mine No. 2. I found the return air course in bad condition and ordered the general manager to have the air course cleared of all falls of rock and put in good condition. The work was at once commenced.

LUMBERTON MINE.

[James Corrigan, manager.]

This mine is located about 1 mile south of the town of Lumberton, Rio Arriba County, N. Mex. Owned and operated by James Corrigan. This is a new mine, which has been operated in a small way since July, 1898. The development work consists of a drift driven in on the vein of coal a distance of 250 feet, and 3 rooms have been turned off from the drift. The vein of coal is 2 feet 8 inches in thickness and of a bituminous character. The daily production is about 10 tons The coal is hauled in wagons and sold to the local trade in the town of Lumberton, N. Mex., also to the Biggs Lumber Company, operating in Rio Arriba County.

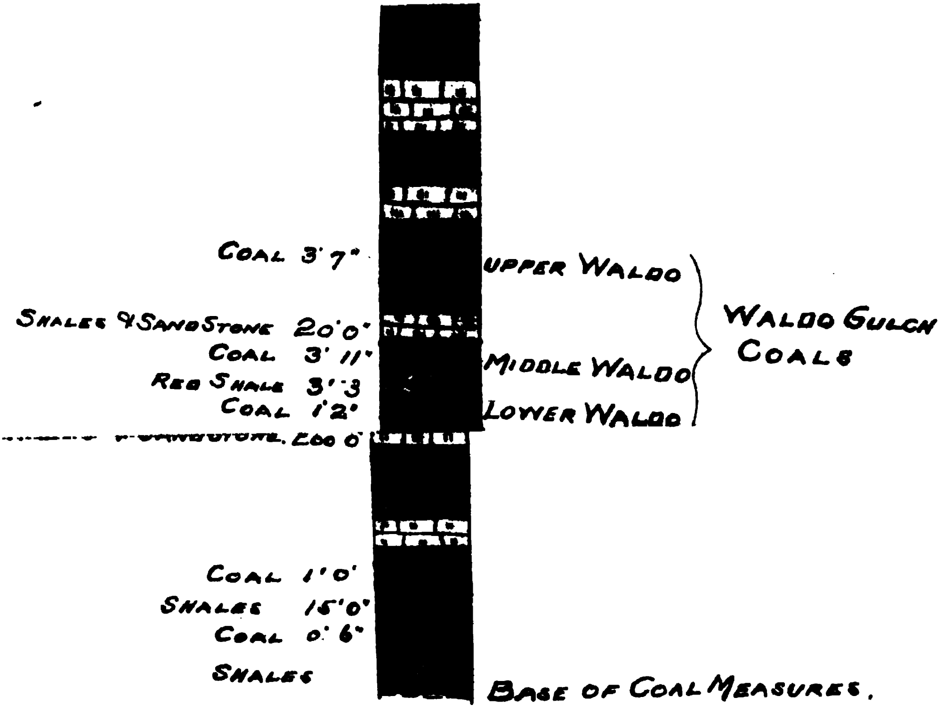
October 27, 1898.—On this date I inspected the Lumberton mine and found the workings in good condition. On my next visit to Monero, on December 12, I was informed that this mine was closed down. No report of the production was made

SANTA FE COUNTY.

WHITE ASH MINE.

[James Duggan, superintendent; William Graham, pit boss.]

This mine is located about 2½ miles south of the town of Los Cerrillos, Santa Fe County, N. Mex. Owned and operated by the Cerrillos Coal Railroad Company. Kind of coal, bituminous; thickness of vein, 5 feet 6 inches; total output fiscal year


Coal 3' 7"
Shales & SandStone 20' 0"
Coal 3' 11"
Red Shale 3' 3
Coal 1' 2'
Sandstone. 200 0'
Coal 1' 0'
Shales 15' 0"
Coal 0' 6"
Shales
Upper Waldo
Middle Waldo
Lower Waldo
Waldo Gulch Coals
Base of Coal Measures.

ended June 30, 1899, 56,000 tons; estimated value of output, $89,600; average number of men employed inside, 70; average number of men employed outside, 15; average number of boys employed inside, 3; number of days mine worked, 262; number of tons used at mine 1,200; where coal is marketed, New Mexico, Arizona, Mexico, and Texas.

This mine is situated on a branch line of the Atchison, Topeka and Sante Fe Railroad, which connects with the main line at Waldo Station.

RECORD OF INSPECTION.

September 7, 1898.—On this date I inspected the White Ash mine. I took air measurements throughout the workings and found the mine well ventilated and in good condition.

October 11, 1898.—I again inspected the White Ash mine. I took air measurements throughout the workings and found them well ventilated and in good condition.

November 29, 1898.—I again inspected the White Ash mine. I took air measurements throughout the workings of the mine and found the mine well ventilated. At the time of my visit the only work being done in the mine was the drawing of pillars, and I ordered the superintendent to keep the miners supplied with plenty of good props and timbers for the purpose of securing their working places from danger.

December 23, 1898.—I inspected the machinery of the White Ash mine and found the machinery in good condition.

January 23, 1899.—I again inspected the White Ash mine and took air measurements and found the air distributed in compliance with the law. I found four sets of timbers broken in the first right entry and ordered new timbers put in at once. The pit boss ordered the timbers brought into the mine and informed me that the work would be commenced as soon as the timbers arrived.

February 23, 1899.—I again inspected the White Ash mine and took air measurements and found the air distributed throughout the workings in compliance with the law. On this date I found the workings of the mine in good condition.

February 28, 1899.—I inspected the machinery belonging to the White Ash mine and found the machinery in good condition.

March 22, 1899.—I again visited the White Ash mine and took air measurements throughout the workings and found the workings well ventilated. I found some of the timbers broken in the first right entry and ordered new timbers put in at once. The pit boss informed me that he would have the timbermen commence the work immediately.

April 27, 1899.—I again inspected the White Ash mine. I found the workings of the mine in good condition. The only work being done on this date was the drawing of the slope pillars, and all pillars will be drawn inside of thirty days, when this mine will be closed down.

May 11, 1899.—On this date I made a final inspection of the White Ash mine. The pillars were all drawn, the mine worked out and abandoned.

LUCAS MINE.

[James Duggan, superintendent; John Hunt, pit boss.]

This mine is located 3 miles south of the town of Los Cerrillos, Santa Fe County, N. Mex. Owned and operated by the Cerrillos Coal Railroad Company. Kind of coal, anthracite; thickness of vein, 3 feet 9 inches; total output, fiscal year ended June 30, 1899. 45,000 tons; estimated value of output, $105,000; depth of slope, 1,800 feet; total value of improvements, $6,000; average number of men employed inside, 160; average number of men employed outside, 35; average number of boys employed inside, 5; average number of boys employed as slate pickers outside, 15; number of days mine was operated, 192; number of tons coal used at mine, 1,000 tons; where coal is marketed, New Mexico, Arizona, California, Colorado, and Kansas.

This mine is located on a branch of the Atchison, Topeka and Santa Fe Railroad, which connects with the main line of the road at Waldo Station. The mine has a capacity of 450 tons per day, and is ventilated by a double 6-foot Murphey fan.

RECORD OF INSPECTION.

September 2, 1898.—On this date I inspected the mine known as the Lucas mine, which is owned and operated by the Cerrillos Coal Railroad Company. I measured 11,000 cubic feet of air entering the mine per minute. I then inspected Nos. 3, 4, and 5 right entries and the rooms thereon. I found the workings which I inspected well ventilated and in good condition.

September 3, 1898.—I continued my inspection of the Lucas mine. I inspected Nos. 1 and 2 right entries and the rooms thereon and took air measurements. I found the workings well ventilated and in good condition.

October 12, 1898.—I again inspected the Lucas mine. I measured 12,000 cubic feet of air entering the mine per minute and measured 12,250 cubic feet of air returning per minute. I found the miners in No. 4 right entry working too far in advance of the air, and ordered a crosscut driven at the face of the entry to connect with the back entry or air course, and ordered the last crosscut bratticed and made air-tight, so as to force the air up to the face of the workings. The work of driving the crosscut was commenced.

October 17, 1898.—I again visited the Lucas mine to ascertain if the crosscut had been driven as per my instructions of October 12. I found that my instructions had been complied with and I found the ventilation very much improved.

November 29, 1898.—I again visited the Lucas mine. I measured 17,760 cubic feet of air entering the mine per minute and measured 19,500 cubic feet of air returning per minute. I found the air distributed throughout the workings as follows:

	Cubic feet.
Last crosscut near the face of fourth right entry	3,520
Top of raised plane on the fourth right entry	6,400
Above the fourth right entry on slope	7,200
Dip plane on the second right entry	1,800

I found the mine well ventilated and found the workings of the mine well timbered and in good condition.

December 22, 1898.—I again inspected the Lucas mine. I measured 13,720 cubic feet of air entering the mine per minute. I then inspected all of the underground workings and found the mine well ventilated and in good condition.

January 27, 1899.—I again inspected the Lucas mine. I measured 17,000 cubic feet of air entering the mine per minute and measured 18,900 cubic feet of air returning per minute. I then inspected the fourth right entry and No. 1 dip plane, and found the workings well ventilated and in good condition.

January 28, 1899.—I continued my inspection of the Lucas mine. I inspected Nos. 2 and 3 right entries and No. 1 dip plane, which is driven between Nos. 2 and 4 right entries, and found the workings in good condition.

January 30, 1899.—I inspected the machinery belonging to the Lucas mine and found the machinery in first-class condition.

February 24, 1899.—I again inspected the Lucas mine. I measured 14,880 cubic feet of air entering the mine per minute and measured 15,750 cubic feet of air returning per minute. I found the workings of the mine in good condition,

February 28, 1899.—I inspected the machinery belonging to the Lucas mine and found the machinery in good condition.

March 17, 1899.—I again inspected the Lucas mine. I measured 14,400 cubic feet of air entering the mine per minute and measured 14,700 cubic feet of air returning per minute. I then inspected the main slope and No. 5 right entry. I measured 3,840 cubic feet of air traveling on the slope between Nos. 4 and 5 right entries. I found the workings well timbered and in good condition.

March 28, 1899.—I continued my inspection of the Lucas mine. I inspected No. 4 right entry and No. 1 dip plane on the fourth right entry, also No. 3 right entry. I found the workings which I inspected in good condition.

May 13, 1899.—I again inspected the Lucas mine. I measured 16,800 cubic feet of air entering the mine per minute and measured 18,000 cubic feet of air returning per minute. I also took air measurements in the slope and in the first dip plane on the fourth right entry, which were as follows:

	Cubic feet.
On slope between Nos. 3 and 4 right entries	8,640
On slope below the fourth right entry	4,800
First dip plane between Nos. 2 and 3 right rooms	1,190

The only work being done in the mine was development work, driving the slope, entries, and turning rooms. I found the mine well ventilated and found the workings in good condition.

May 15, 1899.—I inspected the machinery belonging to the Lucas mine and found the machinery in good condition.

June 10, 1899.—I again inspected the Lucas mine. I measured 5,040 cubic feet of air entering the mine per minute and measured 5,200 cubic feet of air returning per minute. I found the workings of the mine in good condition. On this date the mine was not being operated.

COOK AND WHITE MINE.

[James Duggan, superintendent; William Graham, pit boss.]

This mine is located about 3 miles south of the town of Los Cerrillos, Santa Fe County, N. Mex. Owned and operated by the Cerrillos Coal Railroad Company. Kind of coal, bituminous; thickness of vein, 3 feet 9 inches; total output, fiscal year

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ended June 30, 1899, 145,000 tons; estimated value of output, $230,000; depth of slope, 1,800 feet; value of improvements this year, $5,000; total, $10,000; average number of men employed inside, 250; average number of men employed outside, 25; average number of boys employed inside, 10; number of days mine was operated, 260; number of tons used at mine, 1,000; where coal is marketed, New Mexico, Arizona, California, Old Mexico, and Texas, and to Atchison, Topeka and Santa Fe Railroad.

This mine is situated on a branch line of the Atchison, Topeka and Santa Fe Railroad, which connects with the main line at Waldo Station. At the terminus of this branch line is situated the town of Madrid, which is the post-office address of the Cerrillos Coal Railroad Company, and is quite a beautiful and substantial town, with about 1,200 inhabitants. The company owns all the dwellings and business houses of the town of Madrid, and following the "Record of Inspection" will be found a more complete description of the property of the Cerrillos Coal Railroad Company

RECORD OF INSPECTION.

September 5, 1898.—On this date I commenced my inspection of the Cook and White mine. I inspected the following working places and took air measurements, which were as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Intake on main slope	39,200
Above the second right entry on slope	33,480
Face of third right back entry	5,270
Face of third right main entry	2,880
Return at bottom of slope on right side	13,350
Return at bottom of slope on left side	10,440
Face of third left main entry	3,200
Bottom of slope	25,740
Return on second right entry	18,900
Last crosscut on second right entry	12,600
No. 1 left room on No. 2 raised plane	6,000
No. 3 left room on No. 2 raised plane	5,880
Top of No. 2 raised plane	1,920
No. 1 right room on No. 2 raised plane	8,120
No. 2 right room on No. 2 raised plane	4,800
No. 3 left room on No. 1 raised plane	6,300
No. 5 left room on No. 1 raised plane	4,200
Top of No. 1 raised plane on second left entry	1,200
No. 3 right room on No. 2 raised plane	3,000
No. 1 right room on No. 1 raised plane	3,510

September 6, 1898.—I continued my inspection of the Cook and White mine and found the air measurements to be as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
No. 2 room on No. 2 raised plane, second left entry	4,095
Between Nos. 6 and 7 left rooms, second left entry	3,360
Between Nos. 7 and 8 left rooms, second left entry	2,240
Top of No. 2 raised plane, second left entry	9,240
Between Nos 7 and 8 right rooms, second left entry	4,680
Between Nos. 1 and 2 right rooms, second left entry	5,800
Face of No. 1, right main entry	11,200
No. 1 left room on No. 3 raised plane, first right entry	7,680
Between Nos. 3 and 4 left rooms, first right entry	2,550
Intake to second raised plane on first right entry	7,050
Return at No. 3 fan	27,000
Return at No. 1 fan	18,000
Total number cubic feet of air returning	45,900

I found the mine well ventilated and found the workings which I inspected in good condition.

September 8, 1898.—On this date I inspected the machinery belonging to the Cook and White mine and found the machinery in good condition.

October 13, 1898.—I again commenced my inspection of the Cook and White mine and took air measurements throughout the workings, which were as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Intake on main slope	39,000
Above second right entry on main slope	35,100
Last crosscut on third right entry	7,200
Right back slope on third right entry	13,500
Face of No. 3 left entry	9,800
Left back slope on No. 3 left entry	10,500
Face of No. 3 right entry	5,800
Bottom of slope	23,760
Face of No. 2 left entry	8,800
Intake to No. 1 raised plane on second left entry	10,000
No. 1 left room on No. 1 raised plane	6,000
No. 5 left room on No. 1 raised plane	2,560
No. 7 left room on No. 1 raised plane	3,750
Top of No. 1 raised plane	3,680
No. 7 right room on No. 1 raised plane	5,520
No. 4 right room on No. 1 raised plane	3,920

October 14, 1898.—I continued my inspection of the Cook and White mine and took air measurements, which were found to be as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
No. 1 left room on No. 2 raised plane, second right entry	7,400
No. 4 left room on No. 2 raised plane, second right entry	4,800
No. 3 right room on No. 2 raised plane, second right entry	2,000
No. 1 right room on No. 2 raised plane, second right entry	2,400
Return at No. 1 fan	20,000
Top of No. 1 raised plane on second right entry	1,700
No. 5 left room on No. 1 raised plane, second right entry	3,400
No. 5 right room on No. 1 raised plane, second right entry	2,250
Face of No. 1 right entry	12,100
Return at No. 3 fan	27,500
No. 1 left room on No. 3 raised plane, first right entry	6,000
No. 5 left room on No. 3 raised plane, first right entry	1,750
No. 4 right room on No. 3 raised plane, first right entry	2,880
No. 1 right room on No. 3 raised plane, first right entry	3,150

I discovered a small amount of carbureted-hydrogen gas at the face of the third right entry, and ordered safety lamps used in that place. I found the workings of the mine in very good condition.

October 15, 1898.—I inspected the boilers, ropes, fans, hoisting engines, and all the machinery belonging to the Cook and White mine and found the machinery in good condition.

November 25, 1898.—On this date I inspected the machinery belonging to the Cook and White mine, and I found the machinery in good condition.

November 26, 1898.—I commenced my inspection of the Cook and White mine and took air measurements throughout the workings, which were as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Intake on main slope	39,200
First right entry in last crosscut	16,650
Intake to No. 3 raised plane on first right entry	7,260
No. 3 left room on No. 3 raised plane	4,500
No. 6 left room on No. 3 raised plane	2,520
No. 7 left room on No. 3 raised plane	3,000
Top of No. 3 raised plane	520
No. 6 right room on No. 3 raised plane	1,800
Last crosscut between Nos. 3 and 4 right rooms	1,920
No. 1 right room on No. 3 raised plane	3,100
Return between Nos. 2 and 3 raised plane, first right entry	16,200
Above second right entry on slope	34,560
Last crosscut at face of second right entry	8,360
Inside of No. 2 raised plane of second right entry	12,250
First left room on No. 2 raised plane	5,880

	Cubic feet.
No. 4 left room on No. 2 raised plane	4,050
No. 6 left room on No. 2 raised plane	1,820
No. 4 right room on No. 2 raised plane	1,440
No. 1 right room on No. 2 raised plane	875
No. 2 right room on No. 2 raised plane	1,920
No. 5 left room on first raised plane	4,800
No. 7 left room on first raised plane	4,320
Top of No. 1 raised plane at face of workings	12,600
No. 7 right room on No. 1 raised plane	4,800
No. 2 right room on No. 1 raised plane	2,800
No. 1 right room on No. 1 raised plane	3,600

November 28, 1898.—I continued my inspection of the Cook and White mine and took air measurements, which I found to be as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Bottom of slope	25,300
Face of No. 3 left entry	4,000
No. 3 left back entry at slant	8,000
Face of No. 3 left back entry	2,280
Face of No. 3 right main entry	10,800
Face of No. 3 right back entry	5,460
Air traveling in No. 3 right entry	10,200
Return on right of slope, from No. 3 right entry	17,480
Return on left of slope, from No. 3 left entry	7,650
No. 1 right room on No. 2 raised plane, second left entry	4,550
Last crosscut between Nos. 2 and 3 right rooms	3,840
Last crosscut between Nos. 5 and 6 right rooms	2,600
No. 7 right room at face of room	3,300
Last crosscut between Nos. 5 and 6 left rooms	4,550
No. 2 left room at face of room	1,440
Return at No. 3 fan	25,000
Return at No. 1 fan	16,000
Total number of cubic feet of air returning	41,000

I found the mine well ventilated and found the workings of the mine in good condition.

December 19, 1898.—I again commenced my inspection of the Cook and White mine. I measured 39,200 cubic feet of air entering the mine per minute. I then inspected Nos. 3 right and left entries and found considerable gas generating at the face of No. 3 left back entry, and ordered a crosscut driven at the face of the entry. I also took air measurements throughout the workings, which were as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Last crosscut between Nos. 3 left (back and main) entries	7,040
Return on left of slope, from No. 3 left entry	7,200
Return on right of slope, from No. 3 right entry	16,170
Face of No. 3 right main entry	8,000
Between Nos. 1 and 2 entries on slope	35,600
Between Nos. 2 and 3 entries on slope	23,760

December 20, 1898.—I continued my inspection of the Cook and White mine and found the air measurements to be as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Second right entry inside of second raised plane	13,230
Last crosscut at face of No. 2 right entry	7,000
First left room on No. 2 raised plane, second right entry	3,050
First right room on No. 2 raised plane, second right entry	3,080
Top of No. 2 raised plane	7,000
Air course leading to first right entry	13,302
Face of No. 3 left back entry	2,100

I tested the face of No. 3 left back entry for gas, and found a very small amount of gas at the face of the entry.

December 21, 1898.—I continued my inspection of the Cook and White mine and found the air measurements to be as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Air course leading to No. 3 raised plane on first right entry	8,400
Air traveling in first right main entry	9,880
Air traveling in first right back entry at face of entry	16,000
Crosscut between Nos. 3 and 4 left rooms, No. 3 plane, No. 1 entry	1,800
Crosscut between Nos. 5 and 6 right rooms, No. 3 plane, No. 1 entry	2,430
Return at No. 3 fan	29,500
Return at No. 1 fan	13,725

With the exception of No. 3, left back entry, I found the workings of the mine in good condition, and just as soon as the crosscut in the third left back entry is completed the mine will be in first-class condition.

December 22, 1898.—On this date I again visited the third left back entry in the Cook and White mine for the purpose of ascertaining if the crosscut was being driven at the face of the entry, as per my instructions of the 19th instant. I found the miners at work driving the crosscut and they informed me that the crosscut would be completed on the evening of the 24th instant. On this visit I found no gas in the entry.

December 23, 1898.—On this date I inspected the hoisting engines, boilers, ropes, and fans belonging to the Cook and White mine and found them in good condition.

January 24, 1899.—I again commenced inspecting the Cook and White mine and took air measurements throughout the workings which I inspected. I found the air measurements to be as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Intake on main slope	37,520
Face of third left main entry	2,640
Face of third left back entry	3,720
Last crosscut at face of Nos. 3 left entries	8,100
Return from third left entry to second left entry	7,140
Face of third right main entry	6,750
Return from third right entry to second right entry	18,800
First left room on first left dip plane, second left entry	1,920
Bottom of first left dip plane, second left entry	900
Fourth right room on first left dip plane, second left entry	1,080
First right room on first left dip plane, second left entry	2,520
Top of first left dip plane (intake), second left entry	7,200

I found the above workings well ventilated and in good condition.

January 25, 1899.—I continued my inspection of the Cook and White mine and found the air measurements to be as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Face of No. 2 back entry	2,700
Face of No. 2 main entry	4,800
Intake to No. 1 raised plane	5,500
No. 1 left room on No. 1 raised plane	3,080
No. 1 right room on No. 1 raised plane	2,400
Crosscut between Nos. 2 and 3 right rooms, No. 1 raised plane	1,440
Crosscut between Nos. 3 and 4 left rooms, No. 1 raised plane	1,920
Crosscut between Nos. 7 and 8 right rooms, No. 1 raised plane	1,920
Crosscut between Nos. 9 and 10 left rooms, No. 1 raised plane	2,400

I found the above working places well ventilated and in good condition.

January 26, 1899.—I continued my inspection of the Cook and White mine and took air measurements, which I found to be as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Face of first right back entry	7,560
Face of first right main entry	10,800
Intake to No. 3 raised plane	9,600
Crosscut between Nos. 1 and 2 left rooms, No. 3 raised plane	7,280
No. 8 left room, No. 3 raised plane	2,565

	Cubic feet.
No. 8 right room, No. 3 raised plane	1,530
No. 1 right room, No. 3 raised plane	6,720
Air traveling on slope above second right entries	30,130
Air traveling on slope above third right entries	29,700
Return at No. 1 fan	18,800
Return at No. 3 fan	32,500

I found the workings of the mine well ventilated and in good condition.

January 30, 1899.—I inspected the machinery belonging to the Cook and White mine and found the machinery in first-class condition.

February 25, 1899.—I again inspected the Cook and White mine. I measured 43,800 cubic feet of air entering the mine per minute. I then inspected the rooms on the first raised plane of the second left entry and found considerable gas (fire damp) in No. 6 right room, also in Nos. 8 and 9 left rooms, and immediately ordered the miners to stop working in said rooms until a sufficient quantity of air was forced into said rooms to sweep the gas away from said working places and render them perfectly safe. The superintendent was with me in the mine and he ordered the men to stop work at once. He also informed me that he would not allow any more work done in said mentioned places until they were perfectly clear of gas and absolutely safe. I also ordered the superintendent to allow no person to enter the first raised plane with a naked light and to be certain that every man working on the plane was furnished with a locked safety lamp; also to allow no powder of any kind used on the plane. The superintendent informed me that my instructions would be carried out. I then inspected the first dip plane on the second left entry and found no gas, and found the workings of the dip plane in good condition. I then went down to the third left entries and inspected the same. I found that a very strong feeder of gas (fire damp) had been encountered at the face of the third left main entry and ordered the superintendent to allow no powder used in this entry and to allow the miners to use nothing but locked safety lamps in said entry or the workings thereon. I took an air measurement in the crosscut which was driven between the air course and the main entry at the face of the entry, and measured 2,790 cubic feet of air traveling in the crosscut. This amount of air had very little effect on the feeder of gas, and the supeintendent informed me that he would stop all work on this entry until a much stronger current of air was traveling at the face of the entry and the entry clear of gas. I then inspected Nos. 3 right entries and found said entries and the workings thereon clear of gas and in good condition.

February 27, 1899.—I continued my inspection of the Cook and White mine. I inspected the second right entries and the workings thereon and found the workings on said entries in good condition. I then inspected the first right entries and the workings thereon. I found one of the stoppings between the front and back entries in bad condition on account of not being air-tight, thus allowing the air to escape through the stopping and return to the fan before traveling up to the face of the entries. I ordered the stopping closed up and made air-tight. The man who has charge of the ventilation on this entry commenced the work of closing up the stopping. I then took air measurements throughout the workings, which were as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Intake on main slope	43,800
Above second right entry on slope	34,560
Crosscut between Nos. 1 and 2 right rooms, first raised plane on No. 2 left entry	6,890
Crosscut between Nos. 4 and 5 right rooms, first raised plane on second left entry	3,660
Crosscut between Nos. 5 and 6 right rooms, first raised plane on second left entry	2,400
Last crosscut at face of No. 6 right room, first raised plane	1,820
Return to first right from first raised plane	6,800
Bottom of No. 1 dip plane on second left entry	1,980
Intake to No. 1 dip plane on second left entry	7,830
On slope 100 feet above the third right entry	25,650
Left return at bottom of slope	4,400
Face of No. 3 left entry in crosscut	2,790
Back entry or air course, on third left, south of slant	7,235
Return to second left entry from third left entry	7,350
Return on right side of slope	22,750
Return to second right entry from third right entry	13,950
Crosscut at face of third right entries	6,720
Last crosscut at face of third right entry	5,175

	Cubic feet.
No. 2 right entry, inside of No. 3 raised plane	18,000
Intake to second raised plane on No. 3 right entry	4,680
Intake to No. 1 raised plane on No. 3 right entry	7,920
Intake to No. 3 raised plane on No. 1 right entry	4,380
No. 1 back entry inside of last slant	6,300
Air traveling in first right entry outside of No. 3 raised plane	13,800
Return at top of No. 2 raised plane on second left entry	12,250

I found the workings of the mine well ventilated and in good condition.

February 28, 1899.—On this date I inspected the machinery belonging to the Cook and White mine, and found the machinery in good condition.

March 23, 1899.—I commenced my inspection of the Cook and White mine. I measured 40,200 cubic feet of air entering the mine per minute. I then inspected the main hauling slope, Nos. 3 right and left entries, No. 2 left entry, and No. 1 raised plane on the second left entry. I found a small amount of gas (fire damp) in No. 6 right room on No. 1 raised plane on the second left entry, and ordered canvas brattice put up so as to force the air up to the face of the room and clear the room of gas.

March 24, 1899.—I continued my inspection of the Cook and White mine. I inspected Nos. 1 and 2 right entries and the workings thereon. I found a small amount of gas (fire damp) in No. 1 right room on No. 1 raised plane on the second right entry, and ordered canvas brattice put up, so as force the air to the face of the room and clear the room of any gas that might generate therein. On this date the air measurements throughout the workings were as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Intake on main slope	42,200
Above air splits near bottom of slope	29,700
Left return at bottom of slope	9,680
Crosscut at face of No. 3 left entry	9,840
Return from third left entry to second left entry	9,900
Right return at bottom of slope	17,850
Crosscut near face of third right entry	9,990
Return from third right entry to second right entry	12,600
Intake to No. 1 right room on No. 1 raised plane, second left entry	6,600
Crosscut between Nos. 3 and 4 right rooms on No. 1 raised plane	7,800
Crosscut between Nos. 4 and 5 right rooms on No. 1 raised plane	2,000
Crosscut between Nos. 5 and 6 right rooms on No. 1 raised plane	4,860
Return from No. 1 raised plane to No. 1 right entry	3,750
Intake to No. 3 raised plane	6,500
Face of No. 1 right entry	9,990
Inside of No. 2 raised plane on first right entry	16,450
Top of No. 2 raised plane on second right entry	6,730
Top of No. 1 raised plane on second right entry	3,400
Crosscut at face of No. 2 right entries	6,480
Air traveling in No. 2 right entry	11,610
Return at No. 1 fan	18,040
Return at No. 3 fan	29,500

I found the workings of the mine well ventilated, and as soon as the work of bratticing up the rooms is finished, as per my instructions of March 23 and 24, the mine will be in good condition.

March 25, 1899.—On this date I inspected the machinery belonging to the Cook and White mine, and found the machinery in good condition.

April 22, 1899.—On this date, at about 9 o'clock a. m., I was informed that an explosion had occurred in the Cook and White mine at Madrid, N. Mex. I immediately sent a telegram to the superintendent of the Cook and White Mine, as follows:

JAMES DUGGAN, *Madrid, N. Mex.*:

I will start for mine to-day.

JOHN W. FLEMING.

I immediately got ready and started from Raton, N. Mex., for Madrid, N. Mex., at 12 o'clock m. Arrived at Madrid at 9 o'clock p. m., and on April 23 (Sunday) I entered the Cook and White mine and went down into the third left main entry and tried to get as far as the face of the entry, but on account of the condition of the entries I could not get to the face of the entries. After coming out of the mine, I wrote the following letter, to wit:

MADRID, N. MEX., *April 23, 1899.*

SIR: A gas explosion occurred here in the Cook and White mine on April 21, at 11.55 a. m., which resulted in the killing of 4 men and 1 boy. I arrived here from

Raton, N. Mex., at 9 o'clock p. m., and have been down in the mine to-day, but on account of the timbers and stoppings being blown out of place I could not get to the face of the entries where the men were working at the time the explosion occurred. Men are now working clearing the entries, timbering and repairing the stoppings. The bodies of the men and boy have been recovered. Will report fully as soon as possible.

Very respectfully yours,

JOHN W. FLEMING,
United States Coal Mine Inspector.

COMMISSIONER OF THE GENERAL LAND OFFICE,
Washington, D. C.

April 24, 1899.—I again went down into the Cook and White mine and entered the third left main entry, but on account of falls of rock caused by the explosion I could not get to the face of the main and back entries. I then took air measurements on the slope and left side of the mine, also in No. 3 right entries, which were as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Intake on slope	38,400
Below second right entry on slope	29,280
On slope above air splits, near bottom of slope	29,120
Right return near bottom of slope	17,020
Left return near bottom of slope	10,260
Return from third left main entry to second left back entry	12,960
Between the slant and last crosscut, about 140 feet from the face of the third left main entry	5,600
Return from third right main entry to No. 2 right back entry	13,650
Last crosscut at face of third right entries	5,980
Air traveling outside of slant in third right main entry	13,250

April 25, 1899.—I inspected the second right entries of the Cook and White mine and the workings thereon. I found a fall of rock in the back entry and ordered it cleared up at once. The work was commenced immediately. The air measurements on this date were as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Second right back entry, outside of No. 2 slant	10,560
No. 2 raised plane on second right entry (intake)	3,000
Outside of second raised plane on No. 2 main entry	2,700
Inside of second raised plane	13,200
Top of No. 2 raised plane on second right entry	5,440
Crosscut from No. 14 left room on No. 1 raised plane	7,020
Top of No. 1 raised plane, second right entry	4,800
Crosscut between Nos. 6 and 7 right rooms, No. 1 raised plane	875

On the evening of April 25 the crosshead of the engine which runs No. 1 fan broke, and work was suspended in the Cook and White mine until the engine was in running order. The engine was started April 27 at 11.45 p. m. No persons but the fire bosses were allowed in the mine until the morning of the 28th.

April 28, 1899.—At about 2 o'clock p. m. I was informed that the stoppings along the line of the third left entries, where the explosion occurred, had been repaired as far as the last crosscut. I then went down into the mine and went in as far as the last crosscut on the third left entries and found the main entry full of gas from the crosscut up to the face of the entry, and ordered the men to do no more work until all the men were out of the mine, which would be about 5 o'clock p. m. At 5 o'clock we commenced the work of bratticing the entry with canvas from the crosscut up to the face of the entry, so as to clear it of gas. At 6.30 p. m. the work was completed and I found one of the safety lamps which had been used by one of the men who had been killed in the entry. I also found that all props on which the brattice had been nailed before the explosion had occurred were still standing, but the brattice cloth had been blown down by the force of the explosion. After the work of bratticing had been completed, I tested the face of the entry with my safety lamp and could scarcely get a trace of gas. I also tested the third left back entry and could only get a trace of gas at the face of that entry. I then took air measurements which were as follows: Intake on main slope, 35,040 cubic feet of air traveling per minute; last crosscut near face of the third left entry, 6,480 cubic feet; face of third left back entry, 3,630 cubic feet; face of third left main entry, 4,950 cubic feet.

April 29, 1899.—On this date I again visited the third left entries of the Cook and White mine and examined them thoroughly, and found another safety lamp. The lamps which I found were in good condition. On this date I again took air measurements, which were as follows:

In the last crosscut near the face of entries I measured 6,480 cubic feet of air traveling per minute; at face of the back entry, 3,630 cubic feet, and at face of main entry 5,850 cubic feet.

The full complement of men for work in the two entries is five, and so far no rooms have been turned. On this date I found small feeders of gas generating at the face of the entries. I also inspected the second left entries and the workings thereon. I found gas in the first dip plane, and upon examination I found the air course which supplies the plane with air very small, and ordered the air course made larger. The superintendent was with me and he immediately put men to work enlarging the air course, and informed me that no more work would be performed on the plane until the air course was enlarged and everything in good condition. I also found the return air course leading from the second left main entry to No. 1 fan in bad condition and ordered it cleared of all falls of rock; also ordered it timbered with good, substantial timbers. The superintendent informed me that the work would be commenced at once. He also informed me that a new air shaft, 9 by 9 feet, was being sunk from the surface to connect with the first left entry, near the face of the entry, and that no more work would be done on the left side of the slope until the air shaft was completed and a first-class fan erected thereon. The work of sinking this shaft was commenced on the 22d day of April. The distance from the surface to the abovementioned entry is 60 feet, according to survey, and the shaft will soon be connected with the entry.

Under the head of "Fatal accident reports" will be found my report in full of the gas explosion in the Cook and White mine on April 21, 1899.

May 9, 1899.—I again inspected the Cook and White mine and took air measurements, which were as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Intake on main slope	41,760
On slope above No. 3 entries	26,000
Left return near bottom of slope	8,170
Right return near bottom of slope	22,000
Between last crosscut and hauling slant on No. 3 left main entry	6,300
Face of No. 3 left main entry	5,550
Bottom of No. 1 dip plane on second left entry	2,880

I found considerable water in the left return at bottom of slope and ordered it pumped out. The pump was started immediately.

May 10, 1899.—I continued my inspection of the Cook and White mine and took air measurements, which I found to be as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Last crosscut near the face of No. 3 right entries	5,250
Face of No. 3 right back entry	5,280
Intake to No. 1 raised plane	7,875
Return from No. 3 right entry to No. 2 right entry	12,900
Last crosscut at face of No. 2 right entry	4,600
Face of No. 2 right back entry	4,500
Intake to No. 3 raised plane on No. 2 right entry	7,200
Intake to No. 2 raised plane on second right entry	2,400
Intake to No. 1 raised plane on second right entry	6,000

I found the above workings well ventilated and in fair condition.

May 11, 1899.—I continued my inspection of the Cook and White mine. I found No. 1 raised plane on the second left entry, which is the main air course leading from the second left entry to the fan, in bad condition. I then had the back slope opened up from No. 2 left entry to No. 1 left entry, and ordered the pit boss to keep the back slope opened for an air course until a permanent air course was driven between Nos. 1 and 2 left entries. After the back slope had been opened I took air measurements, which were as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Intake on main slope	42,240
Above No. 3 entries, on slope	32,200
Return from No. 3 left entry to No. 2 left entry	11,900

May 12, 1899.—On this date I again visited No. 2 left entry and No. 1 right entries of the Cook and White Mine and took air measurements, which were as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Bottom of No. 1 dip plane on second left entry	3,200
Back slope or air course between Nos. 1 and 2 left entries	6,150
Last crosscut at face of first right entries	5,670
Return at No. 3 fan	36,120

May 15, 1899.—I inspected the machinery belonging to the Cook and White mine and found the machinery in good condition.

June 6, 1899.—I again commenced my inspection of the Cook and White mine and took air measurements throughout the workings, which were as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Intake on main hauling slope	31,680
On slope above No. 3 entries	30,000
Left return near bottom of slope	7,600
Right return near bottom of slope	17,700
Last crosscut in No. 3 left entries	8,800
Face of No. 3 left back entry	7,050
Face of No. 3 left main entry	4,875
Crosscut at face of No. 3 right entries	9,600
Intake to No. 1 raised plane on No. 3 right entry	6,080
Crosscut between Nos. 1 and 2 left rooms No. 1 raised plane	4,000
Crosscut between Nos. 3 and 4 left rooms No. 1 raised plane	2,400
Return from No. 3 right entry to No. 2 right entry	17,200

I found the workings which I inspected well timbered and in good condition, and, with the exception of the top of No. 1 raised plane, I found the workings well ventilated. I ordered more air forced to the top of the plane. The pit boss informed me that a crosscut was being driven from the third right main entry to connect with No. 1 left room on the plane; also, a door or heavy curtain would be placed across the entry and force all the air up through the workings of the plane.

June 7, 1899.—I continued my inspection of the Cook and White mine and took air measurements, which I found to be as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Intake to No. 1 raised plane on second right entry	7,920
Last crosscut at face of No. 2 right entries	3,480
Intake to No. 4 raised plane on No. 2 right entry	8,150
Intake to No. 2 raised plane on No. 2 right entry	5,400
Top of No. 2 raised plane	5,100
Top of No. 1 raised plane	8,085
Return at No. 3 fan	23,750

I found the workings which I inspected well ventilated and in fair condition.

June 8, 1899.—I continued my inspection of the Cook and White mine and took air measurements, which were as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Top of No. 1 raised plane on second left entry	1,800
Air traveling around the face of Nos. 1, 2, and 3 right rooms on No. 1 raised plane on second right entry	3,600
Crosscut between Nos. 11 and 12 left rooms on No. 1 raised plane	1,400
Intake to No. 3 raised plane on first right entry	12,000
Last crosscut at face of No. 1 right entries	6,450
Return at No. 1 fan	21,600

June 9, 1899.—I again visited the third right entries of the Cook and White mine and found the entries in good condition. I then inspected No. 1 raised plane on the third right entry and found the air course, which was being driven from the third right main entry to No. 1 left room on No. 1 raised plane, completed. I found the ventilation on the plane very much improved. I measured 7,425 cubic feet of air traveling in the air course which is now the intake to the plane, and on June 6 I found only 6.080 cubic feet of air entering the plane. I then took an air measurement up at the top of the plane and found 1,440 cubic feet of air traveling per minute. I found the workings which I inspected well ventilated and in good condition.

June 12, 1899.—On this morning I was informed that roof of No. 1 raised plane on the second right entry in the Cook and White mine had caved where the pillars were being drawn. I immediately went down into the mine and found that the roof had caved back of Nos. 1, 2, and 3 right rooms. I tested the places for gas, but found none, and found the places perfectly safe and in good condition. I then took air measurements throughout the workings, which I found to be as follows:

Cubic feet of air traveling per minute.

	Cubic feet.
Air traveling around the face of Nos. 1, 2, and 3 right rooms, where the pillars are being drawn, on No. 1 raised plane	2,320
Intake on main slope	39,600
Above third right entries on slope	23,000
Left return at bottom of slope	7,000
Right return at bottom of slope	15,300
Last crosscut near face of third right entry	9,920
Crosscut from No. 3 right main entry to No. 1 left room on No. 1 raised plane	6,750
Top of No. 1 raised plane	1,440
Intake to No. 1 raised plane on second right entry	9,750
Top of No. 1 raised plane on second right entry	8,250

On this date I found the workings well ventilated and in good condition.

DESCRIPTION OF THE PROPERTY SITUATED AT MADRID, SANTA FE COUNTY, N. MEX., AND OWNED BY THE CERRILLOS COAL RAILROAD COMPANY.

At Madrid, Santa Fe County, N. Mex., is one of the most attractive and interesting coal-mining camps in the West. The coal fields offer much that is interesting to the geologist as well as to those interested in coal mining. Here, only a few hundred feet apart, are two mines; the one producing a first-class article of anthracite coal, rivaling the Pennsylvania anthracite; the other one is a bituminous coal, unsurpassed for domestic or steam purposes. More interesting, the bituminous vein lies directly under the anthracite, so that the whole field that has been worked out in the anthracite vein has also been worked out in the bituminous vein 150 feet beneath. More interesting yet, the northern end of the anthracite seam was bituminous coal. This has all been worked out and was known as the famous white-ash coal. The white-ash field comprised about 200 acres.

The mine now being worked in bituminous coal is known as the Cook and White; the one now being worked in anthracite coal is known as the Lucas, both mines being named after the men who first operated them. The coal measures in this field are very numerous, these two being the principal seams. The Cook and White runs in thickness from 3 feet 6 inches to 4 feet 6 inches. The seam dips to the east at an angle averaging 12 degrees. The coal outcrops in the side of the canyon and is worked from a main slope driven in the direction of the greatest dip. The field is then blocked out into 600-foot squares, by side entries or levels, and dip or raised planes, driven off from the entries. The entries are driven in such a direction as will keep them nearly level or approximately at right angles to the slope. The planes are driven sometimes to the raise and sometimes to the dip, but always in a direction parallel to the main slope. The entries or levels are always driven in pairs, to enable a thorough system of ventilation, the top entry or hauling road being separated from the back entry by a pillar of 30 feet of coal, which is known as the double-entry system. Connection is kept up between the back and top entries by a system of crosscuts, the last crosscut always being closed as soon as a new one is made. From the planes, rooms are turned to the right and to the left every 50 feet. These, like the entries, are driven in such a direction as to be level and for a distance of 300 feet and 20 feet wide, with a 30-foot pillar remaining between the rooms, which is taken out in retreating after the rooms have been driven up their full length or when the rooms from two adjacent planes have met. Each plane requires a parting, or side track, and a small engine. These engines are so constructed as to be easily moved from one location to another in the mine, as occasion may require. Compressed-air power is used in running these engines as well as the pumps in the mine. Each plane, at its best, yields about 200 tons per day and is worked out in from eight to ten months.

The coal collected on the entries at the different planes is hauled by mules to the main parting for that entry, at the main slope, where it is attached to the main cable and hoisted to the surface. The coal is then quickly dumped from the mine cars into the railroad cars, and is soon on its way to the consumer.

The coal is screened into three different grades, namely: The lump, used for domestic purposes; the nut, also used for domestic purposes, and the slack, used for steam

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purposes. Some of the coal is disposed of unscreened, or "as run of mine," and is used in this condition for heavy steaming purposes where the boiler capacity is limited, as in the case of railway locomotives.

The mine is ventilated by means of two exhaust fans, located one at either side of the mine. The main slope is the main intake for both fans.

The last plane in the first south entry has also been driven out to the surface, which furnishes an auxiliary intake for the air that circulates through the extreme south workings of the entry. The air current coming down the main slope splits, or goes both ways, at the bottom, returning on either side through the workings and up the parallel slopes, which are parallel to the main slopes and 50 feet from it. Each air current then travels its respective side of the mine, through all the workings, and out through by way of the fans. The mine is thus kept thoroughly ventilated through all its parts.

The outside plant consists of the main hoister, small battery of boilers, blacksmith shop, trestle, tipple, scales, etc., and three large air compressors. These, as well as the whole outside plant connected with the Lucas mine, are run by a battery of eight large boilers.

The Lucas seam is the middle one of three coal strata lying close together and which are the top of all the coal measures in this canyon. In some places the three seams are so close together as to be all workable at one time, but as a usual thing only the middle one is mined. This varies in thickness from 3 feet to 3 feet 6 inches, and dips the same as the Cook and White. The methods of working are similar to those of the Cook and White, and the method of ventilation is the same, except that there is one fan instead of two. This fan is located on the north side of the main slope. The air current traveling on the south side of the mine crosses the slope and thus reaches the fan through what is known as the overcast or air-tight wooden box built over the top of the slope and crossing it at right angles. This is at present practically a one-sided mine, as the entries to the north have all been extended to that portion of the vein in which the coal is of a bituminous nature, as has been spoken of above. The prospecting and the work that has been done in the White Ash mine indicates that as the Lucas slope is extended a large field of anthracite coal will be opened up on the north side.

The most interesting part of the outside plant at this mine is the breaker, which name is usually applied to the huge building containing the machinery for crushing and assorting the coal. This building is 250 feet long, 60 feet wide, and 110 feet high. The top of the breaker is on a level with the mouth of the mine. As the coal is hoisted from the mine in pit cars, it is run into the breaker and dumped. On its descent to the storage bins, the coal first passes between two large, rough, iron cylinders, revolving rapidly, and at such a distance apart that the coal is broken up so that the largest pieces weigh from 5 to 6 pounds. This size is known as "grate." The coal then passes through long, cylindrical screens, which are kept slowly revolving. The mesh of the screens vary from one-quarter inch to 4 inches. They are set with one end higher than the other, the coal entering the screen at the higher end, and as the screens revolve the pieces of coal work from the higher to the lower end of the screens, falling through the screen as soon as the part is reached where the mesh is large enough to permit. The different-sized pieces of coal fall into different troughs which lead on down to the storage bins.

There are 15 or 20 boys employed on the breaker as "slate pickers," whose duty is to pick all slate out of the coal as the coal passes through the breaker. They receive 10 cents per hour for their labor. The boys employed on the breaker are from 12 to 16 years of age. The coal is thus graded in the sizes known as "grate," "egg," "stove," "nut," and "pea." The storage bins which hold 75 tons each are filled with the above-mentioned grades of coal. From the storage bins the coal is easily loaded on the railroad cars and shipped to Colorado, Kansas, California, and Mexico.

Owing to the nature of the roof in the mines, a greater portion of the roof has to be supported by timbers where the coal has been taken out. It would doubtless surprise one not acquainted with the workings of a coal mine to see how many cars of timbers are used in the mine each month.

These mines are well equipped for the rapid and safe handling of coal. Electric bell signals are used throughout the workings. Compressed air furnishes the power inside of the mines, and steam outside.

The classes of occupation here are numerous, there being work for the coal miner, timbermen, track layers, rope rider, driver, engineer, machinists, and blacksmith.

The camp is nicely situated, being 3 miles from Los Cerrillos, 15 miles from the gold and copper fields of Ortiz and San Pedro, 35 miles from the Cochiti mining district, and about 25 miles from the city of Santa Fe, which is the capital of the Territory.

The company owns and operates a large store where is kept in stock a large assortment of general merchandise, in fact everything that is needed for the wants of the miner. The miners all dress and live well, buying the best the market affords.

The houses are all owned by the company and rented to the employees. The houses are well built and kept in good repair, and are well suited to the needs of the coal miner and his family. Several hundred shade trees have been set out in the town of Madrid within the last 3 years, which are all growing nicely.

The town supports a city hall, excellent school, and two churches. The greatest disadvantage to work against so far has been the water supply. So far all the water for the town has to be shipped in tanks by railway. The company is now sinking a well in the hope of striking an artesian flow of water, and the indications are that the town will soon have an abundant and unfailing supply of pure water.

OMARA MINE.

[W. P. Gould, lessee.]

This mine is located about 7 miles south of Ortiz Station, which is a station on the Atchison, Topeka and Santa Fe Railroad. Owned by Frederick Muller and is operated by W. P. Gould, lessee. Kind of coal, bituminous; thickness of vein, 4 feet; total output fiscal year ended June 30, 1899, 1,139 tons; estimated value of output, $1,894; depth of slope, 400 feet; average number of men employed, inside, 3; average number of men employed, outside, 4; number of days mine was operated, 225; where coal is marketed, sold to local trade.

This mine is ventilated by an air shaft and has a capacity of 20 tons per day. The coal is hauled in wagons to the railroad at Ortiz Station and shipped to the consumers.

On account of the few men working in this mine I did not visit the mine during the fiscal year. This mine is located in Santa Fe County, N. Mex.

SOCORRO COUNTY.

CARTHAGE MINE.

[Hilton & Luerra, operators.]

This mine is located about 12 miles in a southeasterly direction from San Antonio, Socorro County, N. Mex. Kind of coal, soft bituminous; total output fiscal year ended June 30, 1899, 2,400 tons. Estimated value of output, $5,000; thickness of vein, 4 feet 6 inches; depth of slope, 2,[illegible]00 feet; value of improvements this year, $600; average number of men employed inside and outside, 3; number of days mine was operated, 225; where coal is marketed, Socorro, Silver City, Magdalena, Belen, and Water Canyon, N. Mex.

The coal is hauled in wagons to San Antonio, N. Mex., and shipped to the different towns above mentioned along the Atchison, Topeka and Santa Fe Railroad. This mine has a capacity of about 50 tons per day, and is ventilated by an air shaft. Considerable development work has been done on this mine and the coal is of very good character, but the cost of hauling the coal 12 miles in wagons to railway station is too great an expense to enable the operators to compete successfully with other mines which are situated more conveniently to market.

RECORD OF INSPECTION.

November 9, 1898.—On this date I visited and inspected the Carthage mine. I measured 2,310 cubic feet of air entering the mine per minute and measured 2,450 cubic feet of air returning per minute. I found the workings well ventilated and the mine in good condition.

SAN JUAN COUNTY.

STEVENS MINE.

[Walter Stevens, general manager.]

This mine is situated near the town of Farmington, San Juan County, N. Mex. Owned and operated by Walter Stevens. Kind of coal, bituminous; thickness of vein, 15 feet; total output fiscal year ended June 30, 1899, 310 tons; estimated value of output, $310; value of improvements, $80; average number of men employed, 1; where coal is marketed, town of Farmington, N. Mex.; number days mine worked, 100.

THOMAS MINE.

[W. H. Thomas, manager.]

This mine is situated near La Plata, San Juan County, N. Mex. Operated by W. H. Thomas. Kind of coal, bituminous; total output fiscal year ended June 30, 1899, 150 tons; estimated value of output, $150; thickness of vein, from 2 to 4 feet; number of men employed at mine, 2; number of days mine worked, 60; value of improvements, $600; where coal is marketed, town of La Plata and vicinity.

MORGAN MINE.

[George Morgan, manager.]

Located near the town of La Plata, San Juan County, N. Mex. Operated by George Morgan. Kind of coal, semianthracite and bituminous; thickness of veins, 1 vein 3 feet 10 inches and 1 vein 60 feet; total output fiscal year ended June 30, 1899, 250 tons; estimated value of output, $312; number of men employed in the mine, 2; number of days mine worked, 60; where coal is marketed, sold at mine to local trade.

BRUCE MINE.

[R. E. Bruce, manager.]

Located near the town of Fruitland, San Juan County, N. Mex., and operated by R. E. Bruce. Kind of coal, lignite; thickness of vein, 14 feet; total output fiscal year ended June 30, 1899, 100 tons; estimated value of output, $75; number of men employed at mine, 1; number of days mine worked during the year, 60; where coal is marketed, Jewett Valley and Farmington, N. Mex.

The four above-mentioned mines, which are situated in San Juan County, are about 50 miles from any railway. Owing to the great distance from railway and the few men employed, I deemed it unnecessary to visit and inspect the mines. The mines have not yet been developed to any extent, only a few tons being taken out to supply the local demand. From the reports sent in by the operators of the mines, there seem to be good veins of coal, but the distance from market prevents the mines being worked profitably.

Analysis of coal from the White Ash mine of the Cerrillos Coal Railroad Company.

[Made by W. D. Church, December 2, 1893.]

COAL FROM MADRID, N. MEX.

Water	per cent..	2.00
Volatile matter	do....	39.00
Fixed carbon	do....	53.76
Mineral ash	do....	5.24
Total		100.00
Coke	per cent..	59.00
Character of coke		Strong and tough.
Color of ash		Light-yellowish gray.
Character of ash		Soft and light.
Sulphur (as sulphide)	per cent..	0.010
Sulphur (as sulphate)	do....	.022
Phosphorus	do....	.006
Specific gravity		1.410
1 cubic foot weighs	pounds..	88.125
Analysis of mineral ash:		
Silica	per cent..	26.93
Alumina	do....	32.41
Oxide of iron	do....	3.96
Calcium oxide	do....	24.68
Magnesium oxide	do....	10.32
Calcium sulphate	do....	.21
Alkalies and loss	do....	1.49
Total		100.00

COAL FROM RATON COAL AND COKE COMPANY.

Water	per cent..	0.75
Volatile matter	do....	34.40
Fixed carbon	do....	56.93
Mineral ash	do....	7.92
Total		100.00
Coke	per cent..	64.85
Character of coke		Very strong and tough.
Color of ash		Very light ocher.
Character of ash		Soft and light.
Sulphur (as sulphide)	per cent..	0.016
Sulphur (as sulphate)	do....	.022
Phosphorus	do....	.014
Specific gravity		1.291
1 cubic foot weighs	pounds..	88.690
Analysis of mineral ash:		
Silica	per cent..	44.16
Alumina	do....	39.28
Oxide of iron	do....	2.95
Calcium oxide	do....	7.41
Magnesium oxide	do....	3.27
Sulphate of calcium	do....	.41
Alkalies and loss	do....	2.52
Total		100.00

EMPLOYEES.

The following tabulated statement shows the number of miners, day men, and boys employed in and about the coal mines of the Territory of New Mexico during the fiscal year ended June 30, 1899:

Counties.	Miners.	Boys.	Day men.	Total.
Bernalillo	819	11	112	942
Colfax	139	15	100	254
Santa Fe	483	18	79	580
Rio Arriba	33	....	12	45
Lincoln	24	....	26	50
San Juan	6	....	....	6
Socorro	3	....	....	3
Total	1,507	44	329	1,880

In the column headed "Day men" are included all men employed in and about the mines in any capacity, except those actually engaged in mining. During the fiscal year ended June 30, 1898, there were employed in and about the mines of the Territory 1,485 miners, 30 boys, and 373 day men, making a total of 1,888 employees. During the fiscal year ended June 30, 1899, as shown by the above tabulated statement, there were employed in and about the mines of the Territory 1,507 miners, 44 boys, and 329 day men, making a total of 1,880 employees. A comparison of the two fiscal years shows an increase of 22 miners and an increase of 14 boys, but a decrease of 44 day men, making a total decrease of 8 in the total number of employees for the fiscal year ended June 30, 1899.

Production of coal.

Name of mine.	Number of men employed.		Number of tons of coal mined.		Estimated value of product, 1898-99.
	1897-98.	1898-99.	1897-98.	1898-99.	
BERNALILLO COUNTY.					
Gallup	269	275	141.145	151,525	$212,000
Catalpa	68	105	4,356	58,061	81,280
Crown Point	156	123	61,194	45,490	63,700
Sunshine	125	125	48,450	27,723	39,000
Otero	177	172	90,366	96,473	144,709
Thatcher	0	33	0	11,311	16,967
W. A. Clark	80	90	3,500	46,986	73,158
Rocky Cliff	35	10	32,000	5,000	7,500
Stewart	0	9	0	2,000	3,000
Total	927	942	372,611	444,569	641,314
COLFAX COUNTY.					
Blossburg Nos. 4 and 6	360	240	210,000	308,316	462,474
Smith No. 2	8	6	2,972	3,631	7,262
Mesa	5	5	1,000	1,100	2,200
Latamore	0	3	0	600	1,200
Total	373	245	213,972	313,647	473,136
SANTA FE COUNTY.					
Cook and White	285	285	115,000	145,000	230,000
Lucas	142	200	25,000	45,000	105,000
White Ash	127	88	108,000	56,000	89,600
Omara	0	7	0	1,139	1,894
Total	554	580	248,000	247,139	426,494
RIO ARRIBA COUNTY.					
Monero Nos. 1 and 2	45	45	22,500	39,000	51,100
SOCORRO COUNTY.					
Carthage	4	3	1,500	2,400	5,000
LINCOLN COUNTY.					
Old Abe	0	4	0	1,469	2,672
Akers	0	17	0	0	0
Ayers	0	29	0	0	0
Total	0	50	0	1,469	2,672
SAN JUAN COUNTY.					
Bruce	0	1	0	100	100
Thomas	0	2	0	150	150
Stevens	0	1	0	310	310
Morgan	0	2	0	250	312
Total	0	6	0	810	872

Counties.	Output for fiscal year ended June 30, 1899.	Estimated value.	Percentage of output for Territory.
	Tons.		
Bernalillo	444,569	$641,314	42.378
Colfax	313,647	473,136	29.899
Santa Fe	247,139	426,494	23.558
Rio Arriba	39,000	51,100	3.717
Socorro	2,400	5,000	.229
Lincoln	1,469	2,672	.141
San Juan	810	872	.078
Total	1,049,034	1,600,588	100.000

The production for the fiscal year ended June 30, 1899, was 1,049,034 tons, which was an increase of 190,451 tons over the total production of the previous fiscal year.

The total estimated value of the production for the fiscal year ended June 30, 1899, was $1,600,588.

For the fiscal year ended June 30, 1899, there were reported 25 mines in operation, being 5 more than during the fiscal year previous.

From the column of percentages of production it will be seen that the output of coal from the Territory comes practically from 4 counties.

During the fiscal year there were reported to me, as mine inspector, 15 fatal accidents, the causes of which were as follows: By pit cars, 3; by electric wires, 1; by fall of slate, 2; by smothering, 1; by gas explosion, 5; by fall of rock, 3.

The following table shows the number of tons of coal mined for each life lost:

County.	Tons mined.	Lives lost.	Tons of coal mined for each life lost.
Bernalillo	444,569	1	444,569
Colfax	313,647	5	62,729$\frac{2}{5}$
Santa Fe	247,139	9	27,459$\frac{8}{9}$

During the fiscal year there were reported to me, as mine inspector, 16 nonfatal accidents, the causes of which were as follows: By fall of slate, 2; by pit cars, 3; by falling, 1; by fall of rock, 5; by fall of coal, 4; by railway cars, 1.

The following table shows the number of tons of coal mined for each nonfatal accident:

County.	Tons mined.	Accidents.	Tons of coal mined for each nonfatal accident.
Bernalillo	444,569	9	49,396$\frac{5}{9}$
Colfax	313,647	3	104,549
Santa Fe	247,139	4	61,784$\frac{3}{4}$

ACCIDENTS.

Table of accidents of a fatal character reported to me, as mine inspector, for the fiscal year ended June 30, 1899, showing where accident occurred, date, name of person killed, and the cause of death.

Name of mine.	Date.	Name.	Character of injury.	Cause of death.
Blossburg mine, Blossburg, N. Mex.	Mar. 1, 1899	Juan M. Rivera	Body crushed and neck broken.	Fall of rock.
	do	William Lipscomb	Head badly mashed	Do.
	May 16, 1899	Thomas Hermann	Burned	Electricity.
	May 9, 1899	Robert Walker	Neck broken	Fall of slate.
	June 8, 1899	Hugo Shultz	Broken blood vessel.	Fall of rock.
Gallup mine, Gallup, N. Mex.	Dec. 6, 1898	Franz Cadiz	Lacerated leg	Pit cars.
Cook and White, Madrid, N. Mex.	July 26, 1898	Jose Tenario	Fracture of spinal column.	Fall of slate.
	Dec. 14, 1898	Robert Johnson	Body mashed	Pit cars.
	June 29, 1899	Thomas Foster, jr.	Neck broken	Do.
	Apr. 21, 1899	Fred Aira	Concussion and after-damp.	Gas explosion.
	do	John Piva	do	Do.
	do	John Sienowesky	do	Do.
	do	Adam Jerosewiez	do	Do.
	do	Francis E. Watts	do	Do.
Lucas mine, Madrid, N. Mex.	Oct. 6, 1898	Tranquilino Martinez.	Fell into coal chute	Smothering.

RECORD OF FATAL ACCIDENTS.

BLOSSBURG MINE.

March 1, 1899.—Juan M. Rivera, about 27 years of age, a miner, nativity, Mexican, was killed in the Blossburg mine, in room No. 2, on the fourteenth right entry. Cause, fall of rock. Also William Lipscomb, age about 40 years, a negro miner, who was working with Juan M. Rivera, was killed by a fall of rock. I made a personal inspection of the room in which the two men had been killed. I found that they had been engaged in drawing pillars, and had timbered the south side of the room, but had neglected to timber along the north side, where they were drawing the pillars, leaving a space 40 by 15 feet wide without timbers. I made inquiries of the mine boss to know the reason why the deceased men had not used timbers to secure their working places from all danger. The mine boss, and also the fire boss, informed me that they had repeatedly warned and cautioned both deceased men about timbering their working place, and had ordered them to do so, which they promised to do, but they appeared to be anxious to load more coal before they did any timbering, and the roof, which is composed of rock and bone coal, fell upon them, killing them instantly. Both deceased men were unmarried.

Copy of coroner's report.

TERRITORY OF NEW MEXICO, *County of Colfax, ss:*

We, the undersigned justice of the peace and jury, who sat upon the inquest held this 2d day of March, 1899, on the bodies of William Lipscomb and Juan M. Rivera, found in precinct No. 16 of the county of Colfax, find the deceased came to their deaths by an avoidable accident caused by their own neglect.

CHARLES F. PETERSON,
Justice of the Peace.

THOS. THOMPSON,
MAX FRENCH,
AMBROSE COX,
JOHN HADDOW,
GEORGE WILLIS,
PATRICK MCGARVEY,
Jurors.

May 9, 1899.—Robert Walker, negro, a coal miner, about 40 years of age, was killed in room No. 23, entry No. 20 (left), by a fall of slate. I visited the place where the accident had occurred and found that no work had been done in the room after the fatal accident had occurred. I found the room well timbered and in good condition, but a small piece of draw slate which was close up at the face of the coal fell on the deceased while he was working, killing him instantly.

Copy of coroner's report.

TERRITORY OF NEW MEXICO, *County of Colfax, ss:*

We, the undersigned justice of the peace and jury, who sat upon the inquest held this 10th day of May, 1899, on the body of Robert Walker, found in precinct No. 16 of the county of Colfax, find that the deceased came to his death by reason of an unavoidable accident in the coal mines at Gardiner, N. Mex.

CHARLES F. PETERSON,
Justice of the Peace.

J. C. GOOCH,
J. J. ENIS,
HARRY RUFNER,
CHARLES BARNETT,
J. F. WEBB,
SHELTON TREADWAY,
Jurors.

May 16, 1899.—Thomas Hermann, an Austrian, miner, about 35 years of age, was killed on entry No. 20. I investigated the cause and found that the deceased was on entry No. 20 and a mule was coming down the entry with a loaded car. The driver told Mr. Hermann to stand aside and let the mule pass. He (Hermann) struck the mule with a stick of timber and scared it. The mule ran against him, throwing him against the electric wire, and in falling he pulled the positive and negative wires together, the two wires touching each other caused a heavy flash, which burned him, causing death almost instantly.

Copy of coroner's report.

TERRITORY OF NEW MEXICO, *County of Colfax, ss:*

We, the undersigned justice of the peace and jury, who sat upon the inquest held this 17th day of May, 1899, on the body of Thomas Hermann, found in precinct No.

16 of the county of Colfax, in the Territory of New Mexico, find that the deceased came to his death by reason of his carelessness in the Blossburg mine, in the town of Gardiner, N. Mex., by being killed by electric wires.

C. F. PETERSON,
Justice of the Peace.
C. P. JOHNSTON,
H. L. TAPLIN,
J. JENKINS,
LEE BOGARDUS,
THOMAS GREGORY,
JOSEPH JACKSON,
Jurors.

June 8, 1899.—Hugo Shultz, a German, miner and timberman, about 55 years of age, was injured in the Blossburg mine. He was timbering on the main entry and neglected to pull down some loose rock, and the accident occurred while moving a prop to reset same. When he removed the prop, the slate fell on him and broke a blood vessel. He was carried home and died about 9 o'clock p. m. from internal hemorrhage. No coroner's jury.

GALLUP MINE.

December 6, 1898.—Franz Cadiz, an Austrian, miner, 40 years of age, was injured in the Gallup mine, on No. 15 left entry, room No. 7. He and his partner were dropping a car of coal down the plane. The deceased was in front and his partner behind the car. The car stuck, and deceased asked his partner to loosen the sprags, which his partner did, but neglected to put them back in. He was then unable to hold back the car, and, being in front of it, was run against another car that was in front of him, lacerating his leg. The deceased was taken to the hospital and died on December 10 from the effects of his injuries. No coroner's jury.

LUCAS MINE.

October 6, 1898.—Tranquilino Martinez, a Mexican, slate picker, aged 12 years, was injured in the breaker of the Lucas mine. The deceased fell into the pea-coal chute, where he was smothered, breathing only once after being taken out. No coroner's jury.

COOK AND WHITE MINE.

July 26, 1898.—Jose Tenario, a Mexican, miner, 35 years of age, was injured in the Cook and White mine by a fall of slate. He was working in No. 2 raised plane on second left entry, room No. 5, when a fall of rock occurred in the room, fracturing and dislocating the spinal column of the deceased, from the effects of which he died at about 8 o'clock a. m. Deceased left wife and two children. No coroner's jury.

December 14, 1898.—Robert Johnson, an American, trapper, aged 14 years, was injured in the Cook and White by falling under a pit car and having his body mashed, killing him instantly. No coroner's jury.

June 29, 1899.—Thomas Foster, jr., English, driver, aged 21 years, was injured in the Cook and White mine. He was employed as driver and fell off his loaded trip, the cars running over him and killing him instantly. No coroner's jury.

April 21, 1899.—On this date, at about 11.50 o'clock a. m., a gas explosion occurred in the Cook and White mine, causing the death of Fred Aira, an Italian, miner, 32 years of age; also, the death of John Piva, an Italian, miner, aged 39 years; also, the death of John Sienowesky, a Polander, miner, 35 years of age; also, the death of Adam Jerosewiez, a Polander, miner, aged 35 years; and also the death of Francis E. Watts, an American, driver, aged 16 years.

REPORT OF GAS EXPLOSION.

April 21, 1899.—On this date a fatal gas explosion occurred in the Cook and White mine. At the time the explosion occurred I was inspecting the mines which are located in Colfax County, and did not receive the news of the explosion until 9 o'clock a. m., the following morning, April 22. I started on the first train, at 12 m., for Madrid, N. Mex., arriving there at 9 o'clock p. m. on the same day. Upon my arrival at the mine I asked the superintendent of the mine, James Duggan, where the explosion had occurred. He informed me that the explosion had occurred in or at the face of the third left entries; he also told me that on account of the setbolt, which fastens the eccentric rod to the valve stand of the engine, becoming loose, caused the engine which drives the fan to stop. He also told me that the bodies were all recovered in about three hours after the explosion had occurred; he also stated that two naked lamps were found by the side of the two bodies which had been found in the third left back entry. I then asked him if he could go down into the mine and make an examination of the entries at once. He informed me that there was no work being done in the mine that night, but that men would be working in the entries the following day (Sunday), repairing the stoppings which were blown out by the explosion; also timbering and cleaning up the entries.

On Sunday, April 23, I entered the mine and went down into the third left main entry and tried to get as far as the face of the entries, but, on account of the condition of the entries, I could not get to the face. I found that a number of sets of timbers and all the stoppings along the line of the entries had been blown out by the force of the explosion. I also found four of the stoppings on the slope above the entrance to the third left main entry had been badly shattered, and found that the force of the explosion had traversed across the slope and into the third right entry, breaking down a door which is about 150 feet from the entrance of the third right entry on the slope. I then ordered the pit boss to keep the men at work day and night until the work of timbering, clearing the entries, and repairing the stoppings were completed.

On the 24th of April I again visited the third left entry, but could not get to the face of the workings.

On April 28 I was informed that the stoppings had been repaired up as far as the last crosscut in the entries. I then went down into the mine and went in as far as the last crosscut on the third left main entry, and found the main entry full of gas from the crosscut up to the face of the workings, and ordered the men to do no more work until all the men were out of the mine. At 5 o'clock p. m., when all the men were out of the mine, we commenced the work of bratticing the entry with canvas from the crosscut up to the face of the entry, so as to force the air up to the face and clear it of gas. At 6.30 p. m. the work was completed and I found one of the safety lamps which had been used by one of the men who had been killed, near the face of the entry. I also found that all the props on which the brattice had been nailed before the explosion had occurred were standing, but the brattice had been blown down. After the work of bratticing had been completed, I tested the face of the entry for gas with my safety lamp, and although feeders of gas were generating from the face of the coal, I could scarcely find a trace of gas with my lamp. I also visited the back entry, which is the main air course, and could only get a trace of gas at the face of this entry. On the following day, April 29, I again visited the entries and examined them thoroughly, and found another safety lamp in the third left main entry. The lamps which I found were in good condition. On this date I took air measurements and in the last crosscut found 6,480 cubic feet of air traveling per minute; at face of back entry, 3,630 cubic feet; and at face of main entry, 5,850 cubic feet. The main entry is driven 65 feet beyond the crosscut, and the back entry is driven 68 feet, and the entries are driven about 1,060 feet in length from the slope, which is the main intake or air course for the entries.

I called on Samuel Bailey who was employed as driver in the third right entry at the time of the explosion, and he stated that, at about 11.30 a. m., on April 21, Francis E. Watts, who was then employed as driver in the third left entry, came over into the third right entry and told him (Bailey) that the men in the third left entry were using naked lights, while he (Watts) was compelled to use a safety lamp; and that when any of the bosses came around where the miners were working, the miners in the third left entry would blow out their naked lights and cover the lamps with dirt.

Frank Sherbly, who was working on the night shift in the third left back entry, says that when he finished work on the morning of the 21st, there was no gas in the entry and that the ventilation was splendid.

Eli Perritt, who was working in the back entry with Frank Sherbly, says that he (Perritt) finished work in the entry about 5 a. m. on the morning of the 21st, and when he left the entry in the morning there was no gas at the face of the entry; he further says that the entry was bratticed up to within 8 feet of the face of the workings and everything was in good condition.

George Pugh, who was employed as fire boss in the Cook and White mine, says that he was in the third left entries on April 20, at 1.55 a. m., and found just a very little gas at the face of the back and main entries, but says that there was not enough gas to burn a person if ignited; he further says that the ventilation was splendid and that both entries were bratticed up to within 8 feet of the workings.

Joseph Haske, who was employed as fire boss in the Cook and White mine, says that he was in the third left entries on the morning of the 21st at about 3.30 a. m. and found a very small amount of gas at the face of the entries, and that the air was good and the entries were in good condition.

Henry Aira and Dominick Aira, who are brothers of Fred Aira, deceased, worked in the third left main entry on the night shift, and they say that when they finished their shift at 5.20 a. m on the morning of the 21st there was no gas of any consequence in the entry. I then asked them how their shots were lighted, and they told me that their shots were lighted by opening their safety lamps and using the naked light. This was strictly against the rules.

J. G. Campbell, who was employed in the Cook and White mine as fire boss, says that on the 14th day of April, while he was making his rounds through the mines, he caught Fred Aira, who was killed by the explosion, using a naked light in the third left main entry, and ordered him (Aira) not to use a naked light any more in that place, as it was strictly against the rules; he further stated that the entries were in good condition and the ventilation was splendid.

William H. Graham, who was employed by the Cerrillos Coal Railroad Company as foreman of the Cook and White mine, says that about 9.30 a. m. on April 21, he was in at the face of the third left entries and found no gas, and found the ventilation good and the entries in splendid condition.

James Duggan, who was employed as superintendent of the Cerrillos Coal Railroad Company, says that about 11.50 a. m. on April 21, a man came running to him and told him that No. 1 fan was stopped, and that he (Duggan) immediately ran as fast as he could to the fan house and as he was passing the main slope, which is the intake of the mine, told the rope rider and his assistant to place canvas over the mouth of the slope, and as soon as he (Duggan) reached the fan house he immediately saw what had caused the fan to stop. He states the cause as follows:

The setbolt that fastens the eccentric rod to the valve stem of the engine became loose, causing the engine to stop, and as the fan is run by a belt from the engine the fan also stopped; the superintendent also states that he got the fan and engine to running almost immediately after arriving at the fan house; that just as he got the fan started the explosion occurred. I called the engineer who was running the engine and looking after the fan and asked him how long the fan was stopped, and he told me that it could not have been more than six or seven minutes. The superintendent, James Duggan, stated that he immediately went down into the mine and organized a rescuing party, and found that the explosion had occurred in the third left entries. That by using canvas brattice on the stoppings they soon got into the entries and found the bodies of the four men and boy who had been killed by the explosion, namely, Fred Aira, John Piva, John Sienowesky, Adam Jerosewiez, and Francis E. Watts, and further stated that naked lamps were found by the bodies of Adam Jerosewiez and John Sienowesky, which were found in the third left back entry and out at the last slant on the entry, which is 114 feet from the face of the entry.

William H. Graham, foreman, also stated that the lamps were found beside the bodies of the above-mentioned men. I asked Mr. Graham who found the lamps, and he told me that he found one and Mr. Duggan found the other; he further stated that the two safety lamps, which the miners used in this entry, were found near the face of the entry.

No. 1 fan is a double 6-foot Murphey fan and ventilates the workings of the mine on the left side of the slope, the air being split at the bottom of the slope. No. 3 fan ventilates the workings of the right side of the mine on the right of the slope.

On my last inspection of the mine previous to the explosion, on March 23, I took an air measurement in the last crosscut which is driven at the face of the third left entries, and I measured 9,680 cubic feet of air traveling per minute through the crosscut, but no work was being done in the entry at this time.

The result of my investigation of the cause of the explosion was the conclusion in my mind that on account of No. 1 fan stopping and the canvas being put over the mouth of the slope the intake was then through the air course from No. 1 fan down through the workings of the mine, on the left of the slope, and in through the third left main entry through the crosscut and out by way of the third left back entry, across the slope and into the third right back entry or air course at the bottom of the right side of the slope, and out through by way of No. 3 fan on the right side. That as No. 1 fan was stopped and the air circulating from No. 1 fan around, as stated above, any gas that was generating throughout the workings on the left side of the mine would naturally be carried around with the air down to the third left entries, and as some gas was generating at the face of the third left entries, considerable gas may have accumulated at the face of the entries during the time No. 1 fan was stopped and before the canvas was placed over the mouth of the slope, and when the air returned down through the face of the workings and into the face of the third left entries, it would carry the gas which accumulated with it out through the third left back entry; and, as the naked lights were discovered at the side of the bodies found in this entry, it is my opinion that the gas was ignited by the naked lights at the point where the bodies were found in the third left back entry, and that the force of the explosion traversed back through by way of the third left main entry, as all the stoppings were blown out into the third left back entry. The men had strict instructions to use only safety lamps, and I am led to believe, from the information received, that they were using naked lights.

In conclusion, I would say that had the men been using safety lamps I feel satisfied that no explosion would have occurred.

Copy of report of coroner's jury.

TERRITORY OF NEW MEXICO, *Santa Fe County, ss:*

We, the undersigned justice of the peace and jury, who sat upon the inquest held this 22d day of April, 1899, on the bodies of Adam Jerosewiez, John Sienowskey, John Piva, Fred Aira, and F. E. Watts, found in precinct 19 of the county of Santa Fe, find that the deceased came to their deaths by reason of concussion and after-damp in the third left entries of the Cook and White mine, in the town of Madrid, Santa Fe County, New Mexico, on the 21st day of April, 1899.

GUS J. JOHNSON,
Justice of the Peace.

JAMES MCGLANGHLI,
J. S. CAMPBELL,
FELIX MURPHY,
PAT BRADLEY,
FRANK SHERBLY,
FRANK FRANKEN,
Jurors.

Table of nonfatal accidents.

Name of mine.	Date.	Name.	Character of injury.	Cause.
Otero mine, Gallup, N. Mex.	Dec. 2, 1898	Mike Sackach	Fracture of femur.	Fall of rock.
	Dec. 3, 1898	Peter Giacomino	Fractures of femur and patella.	Do.
	Nov. 28, 1898	Antonio Sanchez	Fingers lacerated.	Railway cars.
Gallup mine, Gallup, N. Mex.	May 12, 1899	James Love	Leg lacerated	Fall of coal.
	June 2, 1899	John Sheridan	Knee cap fractured.	Falling.
	June 6, 1899	Joe Cortez	Compound fracture of leg.	Fall of coal.
Crown Point mine, Gallup, N. Mex.	Aug. 4, 1898	Francis Wenette	Dislocation vertebra.	Fall of rock.
	June 6, 1899	Anton Kivlaio	Lacerated foot	Fall of coal.
Catalpa mine, Gallup, N. Mex.	June 7, 1899	Chas. Breen	Mashed leg	Pit cars.
Blossburg mine, Gardiner, N. Mex.	Mar. 2, 1899	Jno. M. Knight	Broken rib	Fall of slate.
	June 13, 1899	William Lark	Broken leg	Pit cars.
	June 23, 1899	John Pattie	do	Fall of slate.
Lucas mine, Madrid, N. Mex.	Nov. 17, 1898	James Dule	Partial dislocation of vertebra.	Fall of rock.
	Jan. 1, 1899	Harry Childs	Ribs fractured	Do.
Cook and White, Madrid, N. Mex.	Sept. 1, 1898	Peter Stoskee	Cut in groin	Pit cars.
White Ash mine, Madrid, N. Mex.	Oct. 6, 1898	Antonio Velia	Fractured leg	Fall of coal.

RECORD OF NON-FATAL ACCIDENTS.

OTERO MINE.

December 2, 1898.—Mike Sackach, a Slav, miner, age 22 years, was injured by a fall of rock on the Holmes entry of the Otero mine. He was sitting on end gate of car going up the entry when a piece of rock weighing about 100 pounds fell from the roof, striking him between the hip and knee, causing a fracture.

December 3, 1898.—Peter Giacomino, an Italian, miner, age 29 years, was injured in the Otero mine by a fall of coal at the face of his room.

November 28, 1898.—Antonio Sanchez, a Mexican, car man, age 24 years, was injured on railroad track below tipple. He was coupling two cars and got caught between the bumpers, having his fingers lacerated.

GALLUP MINE.

May 12, 1899.—James Love, an American, miner, age 29 years, received an injury in No. 11, left entry, room No. 9. The coal fell upon his foot while he was taking down coal, causing contused lacerated wound on right leg.

June 2, 1899.—John Sheridan, an American, driver, age 22 years, was injured in the Gallup mine. He was running to sprag his trips of loaded cars. He stumbled and fell on his knee with such force that he broke his knee cap.

June 6, 1899.—Joe Cortez, an Italian, miner, age 32 years, was injured in the Gallup mine on No. 11, left entry, room No. 6. He was in the act of undermining the coal, when a piece of coal fell on his leg, causing a compound fracture.

CROWN POINT MINE.

August 4, 1898.—Francis Wenette, an Italian, miner, age 43 years, was injured on entry No. 2, room No. 33. This man was knocking out a prop which had been formerly set, believing that it was of no use. When he had knocked out the prop, a lot of loose rock, which was overhanging, fell upon him, causing dislocation of vertebra.

June 6, 1899.—Anton Kivlaic, a Slav, miner, age 19 years, was injured in entry No. 8, room No. 9. While he was in the act of undermining coal, the coal fell on his foot, causing contused lacerated wound of left foot.

CATALPA MINE.

June 7, 1899.—Charles Breen, a Slav, miner, age 24 years, received an injury in entry No. 1. This man was returning from his work after the noon hour and met a loaded trip of cars. He stepped in front of the trip of cars. The cars knocked him down and mashed his leg.

BLOSSBURG MINE.

March 2, 1899.—John M. Knight, an American, miner, age 48 years, was injured on entry No. 7. He was stooping down and a piece of top slate weighing about 20 pounds fell on him, striking him on the small of the back and fracturing one of the smaller ribs on the right side.

June 13, 1899.—William Lark, an American, helper on motor trips, age 24 years, was injured by pit cars. He was employed on the hauling trip as brakeman and was riding on the bumpers between the cars, when one car jumped the track, and in colliding his left leg was caught between the cars and broken just above the knee.

June 23, 1899.—John Pattie, a negro, miner, age 24 years, was injured in the fifteenth left entry, room No. 19. A piece of slate fell on him from near face of room and broke his right leg above and below the knee.

LUCAS MINE.

November 17, 1898.—James Dule, an Italian, miner, age 45 years, was injured in No. 3 right entry by a fall of rock, causing a partial dislocation of first and second lumbar vertebra.

January 1, 1899.—Harry Childs, Englishman, miner, age 32 years, was injured by a fall of rock at bottom of slope. He received a severe strain of back, fracturing ribs—eleventh and twelfth—on right side close to spinal column.

COOK AND WHITE MINE.

September 1, 1898.—Peter Stoskee, an Italian, miner, age 27 years, was injured on entry No. 2, in room No. 2, first raised plane. He was riding out on trip and fell off, receiving a cut in right groin about 8 inches long.

WHITE ASH MINE.

October 6, 1898.—Anton Velia, an Italian, miner, age 40 years, was injured in the new south entry by a fall of coal fracturing his right leg.

Table showing name of mine, method of working, ventilation, power, etc.

Name of mine.	Method of working.	Ventilation.	Power.
Crown Point	Double compartment shaft	Fan	Steam.
Gallup	Slope, double entry, room and pillar	do	Do.
Otero	Drift, single entry, room and pillar	Furnace	Do.
Rocky Cliff	do	do	Horse.
Sunshine	Slope, double entry, room and pillar	Fan	Steam.
Blossburg	Drift, double entry, room and pillar	do	Electricity
Mesa	Drift, single entry, room and pillar	Air shaft	Horse.
Smith No. 2	do	Furnace	Do.
Monero Nos. 1 and 2	Slope, single entry, room and pillar	do	Steam.
Carthage	do	Air shaft	Horse.
Cook & White	Slope, double entry, room and pillar	Two fans	Steam.
Lucas	do	Fan	Do.
White Ash	do	do	Do.
Catalpa	do	Furnace	Do.
W. A. Clark	do	Air shaft	Electricity.
Latamore	Single entry, room and pillar	Natural	Horse.
Old Abe	do	do	Do.
Akers	Slope and three-entry system	Air shaft	Steam.
Ayers	Slope	Natural	Whim.

During the fiscal year ended June 30, 1899, I did not visit and inspect the four mines located in San Juan County, namely, the Morgan, Stevens, Bruce, and Thomas mines, and the method of working, ventilation, and power used was not reported to me as mine inspector. The said four mines are not, therefore, tabulated in the above table.

MINES NOT IN OPERATION.

Hartsell mine, Colfax County, not operated this year.
Mulholland mine, Bernalillo County, not operated this year.
Smith No. 1 mine, Colfax County, not operated this year.
Sterling mine, Rio Arriba County, not operated this year.
Waldo mine, Santa Fe County, not operated this year.
Miller Gulch mine, Santa Fe County, not operated this year.
Beacon Hill mine, Bernalillo County, not operated this year.
Canavan & Bailey mine, Bernalillo County, not operated this year.
Monero No. 3 mine, Rio Arriba County, not operated this year.

MINES ABANDONED THIS YEAR.

White Ash mine, Santa Fe County, N. Mex.
Lumberton mine, Rio Arriba County, N. Mex.

NEW MINES OPENED THIS YEAR.

Stewart mine, Bernalillo County, N. Mex.
Old Abe mine, Lincoln County, N. Mex.
Akers mine, Lincoln County, N. Mex.
Ayers mine, Lincoln County, N. Mex.
Latamore mine, Colfax County, N. Mex.

Prices paid for labor, mining coal, etc., by the Crescent Coal Company, Gallup, N. Mex.

Mining coal per ton of 2,000 pounds, screened		$0.70
Driving entry	per yard	2.00
Room turning		4.00
Crosscut	per yard	1.50
Timbers	per set	.50
Company men under ground	per day	3.00
Boys attending to doors	do	1.00
Engineers	per month	80.00
Boiler men	per day	2.25
Tipple men	do	3.00
Blacksmiths	do	3.00
Blacksmiths' helpers	do	2.50
Carpenters	do	3.00

Prices of powder and supplies for miners of the Crescent Coal Company.

Powder	per keg	$4.00
Lamp oil	per gallon	1.25
Lamp cotton	per ball	.05
Squibs	per box	.25

Prices paid for labor, mining coal, etc., by the Cerrillos Coal Railroad Company, at Madrid, N. Mex.

Mining coal per ton of 2,000 pounds, screened	White ash	$0.70
	Cook & White	.85
	Lucas	.90
Driving main entry	per yard	3.00
Driving back entry	do	1.75
Driving crosscuts	do	1.50
Driving main slope when in natural coal	do	6.00
Driving main slope when in faults or solid rock	do	9.00
Driving raised planes	do	1.75
Turning rooms off entry and driving room 30 feet		8.00
Setting rough 7-foot timbers		1.00
Setting timbers over 7 feet in length		2.00
Setting 7-foot props		.07

Wages paid:

Pit bosses	per day	$3.00
Fire bosses	do	3.00
Tracklayers	do	2.75
Company timbermen	do	2.75
General company men	do	2.60
Single mule drivers	do	2.60
Team drivers	do	2.75
Rope riders	do	3.00
Car couplers	do	2.75
Assistants to company men	do	2.00

Prices of powder and supplies for miners of the Cerrillos Coal Railroad Company.

Powder	per keg	$2.60
Lamp oil	per gallon	.85
Lamp cotton	per ball	.05
Squibs	per box	.25

PRODUCTION OF COKE.

The Colorado Fuel and Iron Company, of Denver, Colo., started the Waldo ovens, at Waldo, N. Mex., on or about the 1st of September, 1898, and also started the Gardiner ovens, at Gardiner, N. Mex., on or about the 1st of November, 1898, and their production up to the end of the fiscal year, June 30, 1899, was 29,586 tons of coke. The coal used at these ovens came from the Starkville mine, Las Animas County, Colo. The coke made at the Waldo ovens runs from 85 to 87 per cent in fixed carbon, 11 to 13 per cent in ash, 1 per cent in moisture, and three-fourths per cent in volatile matter. It takes about 1.55 tons of coal to make 1 ton of coke.

From the Blossburg mine 7,134 tons of coal was made into coke, but the company did not furnish me the number of tons of coke made from this amount of coal.

The coke produced was shipped and sold to the different smelting plants in New Mexico, Arizona, and old Mexico; also to the plants in El Paso, Tex.

Names and addresses of superintendents or managers or pit bosses of the mines of the Territory.

Name of mine.	Post-office.	Officers.
Sunshine	Gallup	W. M. Weaver, general manager; Hugh McGinn, superintendent.
Gallup	do	Do.
Crown Point	do	Do.
Catalpa	do	Do.
Otero	do	Alex. Bowie, general manager; John Stewart, superintendent; James W. Bowie, M. E.
Thatcher	do	Do.
W. A. Clark	do	W. L. Bretherton, agent.
Rocky Cliff	do	Stephen Canavan, manager.
Stewart	do	William Stewart, manager.
White Ash	Madrid	James Duggan, superintendent.
Lucas	do	Do.
Cook and White	do	Do.
Blossburg	Gardiner	James Van Houton, vice-president; J. A. Wiggs, superintendent.
Smith No. 2	Raton	Albert Shaw, manager.
Mesa	do	John Honeyfield, manager.
Latamore	do	G. B. Latamore, manager.
Carthage	San Antonio	Hilton & Luerra, managers.
Monero Nos. 1 and 2	Monero	J. H. Crist, manager.
Omara	Santa Fe	Frederick Muller, manager.
Akers	Gray	T. L. Welles, superintendent.
Ayers	do	Do.
Old Abe	White Oaks	John Y. Hewett, president.

AIR MEASUREMENTS.

The following table shows the number of cubic feet of air entering the mines and returning per minute, measured at intake and outlet:

Name of mine.	Date.	Intake.	Outlet.
Otero	Sept. 26, 1898	12,960	13,750
	Nov. 16, 1898	17,600	18,860
	Jan. 12, 1899	11,670	12,960
	Apr. 13, 1899	15,780	....
	May 29, 1899	22,150	22,750
Gallup	Sept. 28, 1898	43,740	44,500
	Nov. 19, 1898	27,750	29,960
	Jan. 10, 1899	46,200	47,800
	Apr. 12, 1899	27,400	....
	May 29, 1899	33,000	....
Sunshine	Sept. 27, 1898	23,520	24,240
	Nov. 14, 1898	28,800	30,240
	Jan. 9, 1899	25,600	27,840
Crown Point	Nov. 17, 1898	15,510	16,200
	Jan. 11, 1899	16,000	16,800
	Apr. 14, 1899	18,400	....
	May 27, 1899	7,150	7,650
Thatcher	Jan. 7, 1899	3,840	3,915
	Apr. 16, 1899	5,040	5,460
Rocky Cliff	Nov. 10, 1898	4,320	4,500
	Jan. 4, 1899	8,000	8,255
	May 23, 1899	1,750	1,925
Catalpa	Sept. 23, 1898	8,400	8,640
	Nov. 15, 1898	10,150	11,520
	Jan. 5, 1899	8,910	9,600
	Apr. 10, 1899	7,980	....
	May 25, 1899	6,300	6,720
Stewart	Jan. 14, 1899	2,160	2,240
	Apr. 6, 1899	2,100	....
W. A. Clark	Sept. 22, 1898	6,720	6,840
	Nov. 12, 1898	7,560	7,770
	Jan. 6, 1899	4,800	5,440
	Apr. 7, 1899	4,320	4,680
	May 24, 1899	11,200	12,000
White Ash	Sept. 7, 1898	34,760	41,280
	Oct. 11, 1898	38,000	42,000
	Nov. 29, 1898	39,000	40,820
	Dec. 21, 1898	47,600	50,400
	Jan. 23, 1899	40,200	42,480
	Feb. 23, 1899	39,000	40,300
	Mar. 22, 1899	37,800	38,640
Lucas	Sept. 2, 1898	11,000	....
	Sept. 3, 1898	....	11,500
	Oct. 12, 1898	12,000	12,250
	Nov. 29, 1898	17,760	19,500
	Dec. 22, 1898	13,720	....
	Jan. 27, 1899	17,000	18,900
	Feb. 24, 1899	14,880	15,750
	Mar. 27, 1899	14,400	14,700
	May 18, 1899	16,800	18,000
	June 10, 1899	5,040	5,200
Cook and White	Sept. 5, 1898	39,000	45,900
	Oct. 13, 1898	39,200	....
	Oct. 14, 1898	....	47,500
	Nov. 26, 1898	39,200	....
	Nov. 28, 1898	....	41,000
	Dec. 19, 1898	39,200	43,225
	Jan. 24, 1899	47,520	....
	Jan. 26, 1899	....	51,300
	Feb. 25, 1899	43,800	....
	Mar. 23, 1899	42,000	....
	Mar. 24, 1899	....	47,500
	Apr. 24, 1899	38,400	....
	May 9, 1899	41,760	....
	May 11, 1899	42,240	....
	June 12, 1899	39,600	....
Monero No. 1	Sept. 12, 1898	8,000	8,400
	Oct. 28, 1898	7,600	8,000
	Dec. 9, 1898	8,800	9,200
	Feb. 13, 1899	4,550	4,940
	June 16, 1899	6,300	6,650
Monero No. 2	Sept. 18, 1898	2,340	2,400
	Oct. 26, 1898	2,660	2,680
	Dec. 8, 1898	4,000	4,100
	Feb. 11, 1899	2,700	2,850
Carthage	Nov. 9, 1898	2,310	2,450
Smith No. 2	Dec. 12, 1898	1,520	1,650
	Feb. 18, 1899	2,100	2,170
	May 20, 1899	1,320	....
	June 28, 1899	2,100	2,205
Mesa	Dec. 16, 1898	1,500	1,560

THE COAL TRADE.

The coal trade has been very brisk during the year, and the demand for the coal produced in the Territory has been much greater than the supply. At Madrid and Blossburg the companies could not fill more than two-thirds of orders received, partly on account of not having the mines developed, but mostly on account of scarcity of miners. Otherwise the production would have been many tons greater.

GENERAL REMARKS.

In my previous annual reports I have made mention, under the above heading, of such matters as I deemed of vital importance to the miner and the mining industry of the Territory, and feel it my duty so to do again, in face of the possible charge and criticism that the subject has heretofore been mentioned.

The thickness of the veins in nearly all of the mines where fire damp is generated is favorable to their proper ventilation, and while gas can not be prevented from generating, it could undoubtedly be prevented in the entries and rooms by having proper ventilation, also by crosscuts being driven more closely together, thus sweeping the gas out as fast as it generates.

Every superintendent and pit boss should make it his imperative duty to provide ventilation as the work advances, and he should not delay until he is compelled to make the proper provisions by allowing gas to form so as to cause severe and disastrous explosions.

Proper care and provisions and the knowledge that "eternal vigilance is the price of safety" would be a safeguard to the investments of the owner, and security for the life and limbs of those employed in the mines.

There are no Territorial laws governing the coal industries of this Territory, and when the importance of the subject is properly represented before the Territorial legislature, certain restrictions should be placed on the matter of handling powder, as well as to the ventilation and other matters, which would insure greater safety and protection to the miners and other persons connected with this growing industry.

In all coal mines throughout the Territory the mine officials have expressed their willingness to comply with all requirements of the United States laws governing coal mining, and the main problem which confronts the mine inspector is to get the miners impressed with the necessity of looking out for themselves and use ordinary precaution in their own behalf.

A coal miner of experience needs no promptings or hints that the roof of his entry or room is in bad condition, and he should not need to be compelled to put in the necessary props or timber to insure his protection, and carelessness in this respect often not only jeopardizes his life, but works to the injury of other miners and to the detriment of the management.

There may be some of the workingmen or miners who would like to express their opinions relative to the ventilation or workings of the mine, and probably some would wish to accompany the mine inspector on his tour through the mines. This the inspector would heartily indorse, and would suggest that the miners select one of their number to accompany him through the mine while inspecting. A complaint may be made that the inspector on visiting the mine always asks for the superintendent or pit boss. There are two reasons why the inspector goes to the superintendent or pit boss.

In the first place, the miner does not wish to lose a day or so of work; and the second reason is that the pit boss is a responsible party for all defects in the working of the mine and is the proper person for the inspector to give instructions and orders to relative to ventilation and timbering at any point that the inspector thinks needs regulating.

But what would materially assist the inspector in the performance of his duty would be for the miners or workmen to adopt a system of reporting the condition of the mine to the inspector. This plan would probably result in a material benefit to the workingmen and could result in no injury to those concerned who intended to comply with the law, and would have a tendency to compel those who are careless to do their duty.

Some of the workmen say that they are afraid to complain to the inspector for fear of being discharged; but this should not be allowed. The inspector has a right to question the workmen, and they should feel that they have a right to furnish information required by the inspector.

In many instances the inspector has found the miners working in their rooms and other working places without having them well timbered, and when ordered to timber their places the miner invariably wants to load a car or two more of coal before timbering, and in many instances while loading the coal the roof falls upon him, either causing a fatal or non-fatal accident. This delay in timbering, in a large measure, accounts for the number of accidents of a fatal and non-fatal character.

INSTRUCTIONS AND RULES.

The following are the instructions and rules under which the Cerrillos Coal Railroad Company mines are to be governed, and all fire bosses will observe the same:

First. Do not remain off of duty without giving the foreman due notice, so that he can put a man in your place.

Second. On beginning your shift's work, your regular daily route will be: Commencing at mouth of slope, travel to face, and return from lower entry in slope to the upper entry in same, making a regular travel in all air courses, and examine all places, including abandoned as well as working places, in each entry, with Davy safety lamps, or such other improved lamps as may be in use at the time.

Third. If you find the brattice or canvas shot down or damaged, repair it at once, so as to conduct the air to the face of the workings as soon as possible, and report in every instance where canvas is shot down to the foreman.

Fourth. Report in writing all places where gas is found; also verbally to foreman.

Fifth. If air courses are obstructed in any way by water or rock, etc., report same in writing and verbally to foreman, that he may remedy it at once.

Sixth. Where roof of air course is bad, and looks dangerous and should be timbered or taken down, report same daily in writing and verbally to foreman.

Seventh. Do not allow any man to go into his place with a naked light where standing gas is found or being generated freely. Give him a locked safety lamp and instruct him to use it instead of a naked light until further advised by you. Any person that you find disobeying this rule, report same to foreman at once, and the miner so disobeying will be discharged from the employment of the company.

Eighth. If you should find a large quantity of gas at any time in the mine between shifts, report same at once to foreman, and do not allow the men to go forward on the slope farther down than lamp house, and the foreman will know from your report how to instruct further.

Ninth. Quantities of gas found in places on account of brattice or canvas shot down should always be removed by the fire boss and not allow the men to enter the place under any consideration until the gas is removed.

Tenth. Instruct men who are working with safety lamps to brush all gas from their places before firing shots.

Eleventh. Any fire found in the mine from shot firing or otherwise must be put out promptly, and call for assistance from any point if you are unable to extinguish it yourself.

Twelfth. Examine and clean all safety lamps thoroughly after each shift's use and do not allow any defective lamps to be taken from the lamp house.

Thirteenth. Any lamps that are damaged by any person using them, or if they fail to return them after the expiration of each shift, report same to foreman and damages will be charged against them.

Fourteenth. Report all places to foreman where you think there is not a sufficient flow of air traveling to prevent the accumulation of gases.

Fifteenth. Travel the main return-air ways daily without fail, and see that same are in perfect condition.

Sixteenth. Put the danger mark (X X) at the entrance of all places that contain any standing gas.

RULES GOVERNING THE CERRILLOS COAL RAILROAD COMPANY MINE FANS.

First. The fireman will attend to the fans when the engineers are off duty.

Second. The engineer when on duty will have full charge of the fans and see that they are properly attended to.

Third. On commencing the shift's work visit the fans and see whether they are in good order or not.

Fourth. If you find any of the fans in bad order notify the master mechanic at once.

Fifth. Do not stop the fan for any slight adjustment while men are in the mine.

Sixth. If either fan should get out of order, so that it is necessary to stop it, close the trapdoor near the fan immediately after stopping the fan, and open trapdoor immediately when the fan is started up again.

Seventh. Notify the foreman before you stop either or both of the fans.

Eighth. Do not stop both fans at one time while men are in the mine unless you see that they will be totally destroyed by continuing to run them, and not then until you notify the foreman to get the men out of the mine.

Ninth. If a sudden breakdown should take place, or you should find one of the fans stopped, notify the foreman at once; then close the trapdoor and notify the master mechanic.

Tenth. In case of breakdown occurring to either of the fans and the master mechanic is not close at hand, the engineer and fireman must do everything within their power to get the fan in operation again as soon as possible.

Eleventh. Fans are to be kept speeded as per verbal instructions given to you from time to time by the master mechanic or superintendent.

Twelfth. Visit the fan every hour and notice if all the working parts are in good order.

Thirteenth. Notice the speed of the fan every thirty minutes.

Fourteenth. If anything occurs to the boilers or steam-pipe connections, or if a sufficient quantity of steam can not be kept up for both fans and hoisting plant, stop hoisting till such time as you can recover and maintain the usual pressure of steam.

RECOMMENDATIONS.

Deeming the present law governing the mining industry in the Territories as inadequate, especially in mines generating fire damp, I beg leave to offer a few suggestions in the way of amendments thereto, as I have suggested and recommended in my previous reports.

First. That the owner or operator of each and every coal mine employing ten or more men should make, or cause to be made, an accurate map or plan of the workings of such coal mine on a scale not exceeding 100 feet to 1 inch, showing the bearings and distances of the workings and the general inclinations of the strata, or any material deflections in such workings, and the boundary lines of such coal mines, which shall be kept for the use of the inspector at the office of said mine in the county where such mine is located, and shall also furnish a true copy of such map or plan to the inspector of coal mines, to be filed in his office; and said owner or agent shall be caused to make, on or before the 10th day of January and July of each and every year, a statement showing the workings of the coal mine or mines. If the agent or owner of any coal mine shall neglect or refuse, or for any cause fail for the period of one month after the time described to furnish said map or plan as above required, or if the inspector should find or have reason to believe the map or plan was inadequate in any material part, he be authorized to cause a correct map or plan of the actual workings of such coal mine, said map or plan to be made at the expense of the owner thereof.

Second. The owner or agent of any coal mine, whether shaft, slope, or drift, shall provide and maintain for every such mine an amount of ventilation not less than 150 cubic feet (where fire damp is known to exist) per minute for each and every person employed in said mine, also an amount of ventilation of not less than 500 cubic feet per minute for each mule or horse used in such mine, which shall be distributed throughout the mine in such a manner as to dilute and render harmless and expel the noxious and poisonous gases from each and every working place in the mine. Break throughs or air ways should be driven at least every 60 feet, or closer if deemed necessary by the inspector, and an air way or break through be made at the face of each and every abandoned room or entry. All break throughs, except those last named, near the working face of the mine, shall be closed up and made air-tight by brattice, trapdoor, or otherwise, so that the current of air in circulation in the mine may sweep to the interior of the mine, where the persons employed in such mine are at work.

Third. Within twenty-four hours after abandonment of any working face in the mine all tracks, ties, and other material, if any, should be taken out, and all entrances and approaches to that particular place should be bratticed up or filled in with "goaf," except openings for ingress and egress of air, and in these two openings, immediately in the openings and not in the room and working face, danger signals should be placed in such a manner that an intruder could not avoid seeing them.

Fourth. All mines to be provided with artificial means of ventilation necessary to provide a sufficient quantity of air, such as fanning or suction fans, exhaust steam, furnaces, or other contrivances of such capacity and power as to produce and maintain an abundant supply of air; but in case a furnace shall be used for ventilating purposes it shall be built in such a manner as to prevent the communication of fire to any part of the works by lining the upcast with incombustible material for a sufficient distance up from said furnace. All mines generating fire damp shall be kept clear of standing gas, and every working place shall be carefully examined every morning with a safety lamp by a competent person or persons before any of the employees are allowed to enter the mine, and the persons making such examinations shall mark on the face of the workings the day of the month and report the condition of the mine at or near the pit top to the superintendent or pit boss; and in all the mines, whether they generate fire damp or not, the doors used in assisting or directing the ventilation of the mine shall be so hung and adjusted that they will shut up of their own accord and can not stand open. The owner or agent shall employ a practical and competent overseer, to be called a mining boss, who shall keep a careful watch over the ventilating apparatus and the air ways, traveling ways, pumps, timber, and drainage; also shall see that as the miners advance their excavations all loose coal, slate, and rock overhead are carefully secured against falling in on the traveling way, and that sufficient props and caps of suitable length and size are furnished for the places where they ought to be used and placed in the working places of the miners. Such person should measure the ventilation at least three times per week at the inlet and outlet, and also near the face of all entries. A record, on properly printed blanks, should be kept of such measurements, and at the end of each week the mine inspector should be mailed a copy of said air measurements.

Fifth. The mining boss, or other competent person, should make daily inspections of all ropes, chains, cages, and other hoisting apparatus, guides, and shaft timbers, and make a record of such daily inspection in a book kept in the office of such mine for that purpose. The mine boss should keep a daily record of any defect in the ventilating appliances and any standing gas that may be found in the mine, designating the entry or room in which the gas has been found. The record of the aforesaid inspection shall at all times be kept open for the inspection of the mine inspector.

Sixth. I further recommend that bore holes be kept in advance of the face of each and every working place, and, if necessary, on both sides when driving toward an abandoned mine or part of a mine suspected to contain inflammable gases or to be inundated with water, said bore holes to be kept at least 30 feet in advance of the workings.

Respectfully submitted.

JOHN W. FLEMING,
United States Coal Mine Inspector for the Territory of New Mexico.

LAWS GOVERNING THE WORKINGS OF COAL MINES IN THE TERRITORIES.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in each organized and unorganized Territory of the United States wherein are located coal mines, the aggregate annual output of which shall be in excess of one thousand tons per annum, the President shall appoint a mine inspector, who shall hold office until his successor is appointed and qualified. Such inspector shall, before entering upon the discharge of his duties, give bond to the United States in the sum of two thousand dollars, conditioned for the faithful discharge of his duties.

SEC. 2. That no person shall be eligible for appointment as mine inspector under section one of this act who is not either a practical miner or mining engineer and who has not been a resident for at least six months in the Territory for which he shall be appointed; and no person who shall act as land agent, manager or agent of any mine, or as mining engineer, or to be interested in operating any mine in such Territory, shall be at the same time an inspector under the provisions of this act.

SEC. 3. That it shall be the duty of the mine inspector provided for in this act to make careful and thorough inspection of each coal mine operated in such Territory, and to report at least annually upon the condition of each coal mine in said Territory with reference to the appliances for safety of the miners, the number of air or ventilating shafts, the number of shafts or slopes for ingress or egress, the character and condition of the machinery for ventilating such mines, and the quantity of air supplied to the same. Such report shall be made to the governor of the Territory in which such mines are located and a duplicate thereof forwarded to the Secretary of the Interior, and in case of an unorganized Territory directly to the Secretary of the Interior.

SEC. 4. That in case the said mine inspector shall report that any coal mine is not properly constructed or not furnished with reasonable and proper machinery and appliances for the safety of the miners and other employees, it shall be the duty of the governor of such organized Territory, it shall be the duty of the Secretary of the Interior, to give notice to the owners or managers of said coal mine that the said mine is unsafe and notify them in what particular the same is unsafe, and require them to furnish or provide such additional machinery, slopes, entries, means of escape, ventilation, or other appliances necessary to the safety of the miners and other employees within a period to be in said notice named, and if the same be not furnished as required in said notice, it shall be unlawful after the time fixed in such notice for the said owners or managers to operate said mine.

SEC. 5. That in all coal mines of the Territories of the United States the owners or managers shall provide at least two shafts, slopes, or other outlets, separated by natural strata of not less than one hundred and fifty feet in breadth, by which shafts, slopes, or outlets distinct means of ingress and egress shall always be available to the persons employed in said mine. And in case of the failure of any coal mine to be so provided, it shall be the duty of the mine inspector to make report of such facts, and thereupon notice shall issue, as provided in sec. 4 of this act, and with the same force and effect.

SEC. 6. That the owners or managers of every coal mine at a depth of one hundred feet or more shall provide an adequate amount of ventilation of not less than fifty-five cubic feet of pure air per second, or thirty-three hundred cubic feet per minute, for every fifty men at work in said mine, and in like proportion for a greater number, which air shall by proper appliances or machinery be forced through such mine to the face of each and every working place, so as to dilute and render harmless and expel therefrom the noxious or poisonous gases, and all workings shall be kept clear of standing gas.

SEC. 7. That any mine owner or manager who shall continue to operate a mine after failure to comply with the requirements of this act and after the expiration of the period named in the notice provided for in section 4 of this act, shall be deemed guilty of a misdemeanor, and shall be fined not to exceed five hundred dollars.

SEC. 8. That in no case shall a furnace shaft be used or for the purpose of this act be deemed an escape shaft.

SEC. 9. That escape shafts shall be constructed in compliance with the requirements of this act within six months of the date of the passage hereof, unless the time shall be extended by the mine inspector, and in no case shall the said time be extended to exceed one year from the passage of this act.

SEC. 10. That a metal-speaking tube from the top to the bottom of the shaft or slope shall be provided in all cases, so that conversation can be carried on through the same.

SEC. 11. That an improved safety catch shall be provided and sufficient cover overhead on every carriage used in lowering or hoisting persons. And the mine inspector shall examine and pass upon the adequacy and safety of all such hoisting apparatus.

SEC. 12. That no child under twelve years of age shall be employed in the underground workings of any mine. And no father or other person shall misrepresent the age of anybody so employed. Any person guilty of violating the provisions of this section shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not to exceed one hundred dollars.

SEC. 13. That only experienced and competent and sober men shall be placed in charge of hoisting apparatus or engines. And the maximum number of persons who may ascend or descend upon any cage or hoisting apparatus shall be determined by the mine inspector.

SEC. 14. That it shall be lawful for any inspector to enter and inspect any coal mine in his district and the work and the machinery belonging thereto at all reasonable times, but so as not to impede or obstruct the workings of the mine; and to make inquiries into the state of the mine, works, and machinery, and the ventilation and mode of lighting the same, and into all matters and things connected with or relating to the safety of the persons employed in or about the same, and especially to make inquiry whether the provisions of this act are complied with; and the owner or agent is hereby required to furnish means necessary for such entry, inspection, examination, and inquiry, of which the said inspector shall make an entry in the record of his office, noting the time and material circumstances of the inspection.

SEC. 15. That in all cases of fatal accident a full report thereof shall be made by the mine owner or manager to the mine inspector, said report to be in writing and made within ten days after such death shall have occurred.

SEC. 16. That as a cumulative remedy, in case of the failure of any owner or manager of any mine to comply with the requirements contained in the notice of the governor of such Territory or the Secretary of the Interior, given in pursuance of this act, any court of competent jurisdiction, or the judge of such court in vacation, may, on the application of the mine inspector, in the name of the United States and supported by the recommendation of the governor of said Territory, or of the Secretary of the Interior, issue an injunction restraining the further operation of said mine until such requirements are complied with, and in order to obtain such injunction no bond shall be required.

SEC. 17. That whenever the terms "owner or manager" are used in this act the same shall include lessees or other persons controlling the operation of any mine. And in case of violations of this act by any corporation, the managing officers and superintendents, and other managing agents of such corporation, shall be personally liable and shall be punished as provided in the act for owners and managers.

SEC. 18. That the mine inspectors provided for in this act shall each receive a salary of two thousand per annum and their actual traveling expenses when engaged in their duties.

SEC. 19. That whenever any organized Territory shall make or has made provisions by law for the safe operations of mines within such Territory, and the governor of such Territory shall certify said fact with a copy of said law to the Secretary of the Interior, then and thereafter the provisions of this act shall no longer be in force in such organized Territory, but in lieu thereof the statute of such Territory shall be operative in lieu of this act.

Approved March 3, 1891.

FINANCIAL.

I have the honor to submit the following report of the operations and condition of the treasury for the past two years, from November 30, 1896, to the close of business, June 30, 1899.

Very respectfully, your obedient servant,

J. H. VAUGHN,
Territorial Treasurer.

REVENUES AND EXPENDITURES.

The total revenues and expenditures of the Territory during these two years are shown in the following table:

REVENUES.

Title of fund or account.	1897.	1898.
Licenses	$6,249.52	$63.24
Taxes	194,824.37	252,425.60
Fees paid by district court clerks	8,460.20	7,820.79
Proceeds of convicts' earnings and support of United States prisoners in the New Mexico Penitentiary	6,991.59	7,459.31
Cattle indemnity fund	14,000.00	12,000.00
Interest on deposits	4,263.15	2,718.97
Repayments	126.92	69.58
Insurance companies' licenses	1,080.00	....
Fees paid by secretary of the Territory	1,065.00	2,519.00
Pullman Palace Car Co	117.50	91.97
Sale of Compiled Laws of 1897	....	1,878.50
	236,678.25	287,046.96

Proceeds of capitol rebuilding bonds	$73,125
Proceeds of Insane Asylum bonds	30,000
Money borrowed to complete payment of interest coupons under section 2607, Compiled Laws of 1897	51,600
United States annual appropriation for Agricultural College	47,000

EXPENDITURES.

Interest fund	$64,430.00	[1] $86,142.50
Licenses	4,499.59	135.28
Penitentiary	36,199.91	40,035.05
Salary	34,660.81	35,382.14
Supreme court	856.22	626.75
Miscellaneous	31,778.72	41,373.95
Assessors	9,020.53	9,958.27
Transportation of convicts	3,408.42	4,066.01
Deficit fund forty-fourth fiscal year	33.80	....
Territorial institutions	59,344.44	42,459.19
Branch agricultural experiment station	85.18	....
Cattle sanitary board	17,148.72	16,915.37
Interest on deposits	4,111.29	876,76
School fund	1,288.36	28.34
Deficiency forty-sixth fiscal year	836.39	22.48
Special court fund	1,283.87	3.51
Normal schools	9,326.15	9,025.54
Capitol rebuilding fund	11,547.79	34,823.86
Corporation fund	967.40	1,248.16
Legal expense fund	1,272.25	227.75
Territorial purposes forty-eighth fiscal year	3,214.00	....
Special tax	....	21,768.24
Sheep sanitary board	....	865.00
Compilation fund	....	1,836.00
	295,318.84	347,315.15

United States annual appropriation for agricultural college	$47,000
Paid notes given for the interest fund	23,600

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[1] The excess of the interest payments in 1898 above the annual interest charge represents the payment of arrearages of 1895 and 1896.

I respectfully call your attention to the importance of providing additional funds for the interest fund, which is now in arrears to the extent of $40,000, and will be, at the close of the present fiscal year, on the first Monday of March, 1899, to the extent of $55,000, as shown by the following summary:

Treasurer's notes outstanding, given for loans to complete the payment of coupons	$28,000
Interest due up to date of this report	1,874
Interest due January 1, 1899	9,939
Interest due March 1, 1899	15,430
Total arrearage to close of fiscal year	55,243

About $25,000 of this arrearage existed two years ago, and the attention of the last legislature was called to the necessity of making some provision for its payment, but no action was taken. The remainder of the arrearage has arisen during the past two years, from the failure of the cash receipts from taxation to equal the appropriations. I have paid the coupons promptly at their maturity, in all cases, but to do so I have had to borrow from other funds, when conditions permitted, and when this was not possible, I have borrowed under the provisions of section 2607, Compiled Laws. Although I will receive quite a sum for the interest fund, from the tax of 1898, which will soon begin to come into the treasury, yet all this money, and more, will be required to meet the coupons maturing after the beginning of the next fiscal year, so that it is necessary to provide the full amount of the deficiency, $55,000. To lay a tax for this purpose will require about 3 mills of taxation, and will not produce the amount in full, for over a year, and as taxation is already heavy, I suggest the propriety of a short-time bond issue, say ten-year 6 per cent bonds with option to the Territory to redeem at any time after one year from their date, and with the provision for an annual tax beginning in 1899, sufficient to pay all the bonds by the time of their maturity. A tax of one-quarter of 1 mill will be ample to begin with, and the rate can be reduced from year to year. It is of the utmost importance that this or some other provision be made for this fund, as it will not be possible for the treasurer much longer to take care of the coupons as they mature, by the makeshift processes which have answered for the past four years.

LIST OF SCHEDULES ACCOMPANYING THIS REPORT.

No. 1. Statement of the assessed valuation, tax rate, arithmetical and cash product of the rate for the years 1896 and 1897.

No. 2. Appropriations of 1897 and 1898 and cash receipts from the tax levied for their payment.

No. 3. List of depository banks.

No. 4, Special account of moneys paid treasurer by district court clerks.

No. 5. Treasurer's statements of receipts and disbursements for the fourth quarter forty-seventh fiscal year.

No. 6. A similar statement for the forty-eighth fiscal year.

No. 7. A similar statement for the first three-quarters of the forty-ninth fiscal year.

No. 8. Treasurer's general account.

No. 9. List of fire insurance companies.

No. 10. Statement of the Territorial debt.

SCHEDULE NO. 1.—*Statement of the assessed valuation, rate of taxation, arithmetical and actual cash product of the rate of taxation and the percentage of the cash product to the arithmetical product in the Territory of New Mexico for the years 1896 and 1897.*

County.	1896—Rate of taxation 7.75 mills.				1897—Rate of taxation 10.80 mills.			
	Assessed valuation.	Arithmetical product of tax.	Actual cash product of tax.	Percentage of cash to arithmetical product.	Assessed valuation.	Arithmetical product of tax.	Actual cash product of tax.	Percentage of cash to arithmetical product.
Bernalillo	$7,145,171.00	$55,375.08	$29,432.62	53	$7,395,184.00	$79,867.89	$35,586.96	44
Chaves	1,911,014.00	14,810.36	12,826.36	86	1,475,829.00	15,938.96	13,087.42	82
Colfax	2,457,110.00	19,042.60	16,735.11	87	2,722,180.00	29,399.55	20,348.01	69
Donna Ana	2,582,865.00	20,017.20	16,758.31	83	2,446,692.85	26,424.28	20,415.60	77
Eddy	1,284,375.00	9,953.91	7,161.04	71	1,113,075.00	12,021.22	8,665.88	61
Grant	3,334,490.00	25,842.30	19,289.79	74	3,468,236.45	37,456.96	23,880.53	63
Guadalupe	494,354.00	3,831.24	2,084.87	54	420,558.00	4,542.04	2,938.58	64
Lincoln	1,419,373.00	11,000.14	9,256.09	84	1,413,832.00	15,269.39	11,943.28	78
Mora	992,430.00	7,691.34	4,772.77	62	968,135.00	10,455.87	6,114.56	57
Rio Arriba	680,205.12	5,271.59	4,692.37	89	800,222.00	8,642.40	5,221.66	60
San Juan	386,927.00	2,998.68	2,071.12	69	729,310.00	7,876.56	2,407.53	30
San Miguel	4,684,105.00	36,301.81	15,979.25	44	4,209,564.00	45,463.29	17,895.36	39
Santa Fe	1,925,613.00	14,923.50	9,320.49	62	1,851,701.00	19,998.38	11,242.40	56
Sierra	1,098,335.00	8,512.10	6,754.15	79	1,055,072.30	11,394.79	9,137.45	80
Socorro	2,389,874.00	18,521.52	13,992.46	75	4,611,482.00	49,804.00	18,200.51	37
Taos	551,271.00	4,272.35	2,429.39	57	953,689.00	10,299.85	3,075.73	30
Union	1,217,550.00	9,436.01	7,959.34	84	1,174,850.00	12,688.38	9,109.98	71
Valencia	2,336,040.36	18,104.31	4,810.44	26	2,668,506.58	28,819.87	6,668.81	23
Total	36,091,192.48	285,906.04	186,325.97	65	39,478,119.18	426,263.68	225,940.25	50

The tax rate of 1896 was:
For Territorial purposes, 6 mills.
For Territorial institutions, 1.75 mills.

Included in the above table is a small tax of cattle and sheep but not sufficient to make any material variation on the result given.

The tax rate of 1897 was:
For Territorial purposes, 7 mills.
For Territorial institutions, 2.05 mills.
For special tax, 1.25 mills.
For capitol contingent sinking fund, 0.50 mills.

SCHEDULE NO. 2.—*Appropriations of 1897 and 1898; cash receipts from tax levies for their payment and cash product of special taxes for those years.*

Fund.	1897.		1898.	
	Appropriation.	Cash receipts.[1]	Appropriation.	Cash receipts.[2]
Interest fund	$63,440.00		$63,440.00	
Penitentiary current expense fund	51,420.00		40,220.00	
Salary fund	35,120.00		35,120.00	
Supreme court fund	1,200.00		1,200.00	
Miscellaneous fund	54,150.00		48,100.00	
Transportation of convicts	5,000.00		5,000.00	
Total	210,330.00	$138,811.29	193,080.00	$138,870.17

[1] Product of 6 mills taxation for Territorial purposes.
[2] Product of 7 mills taxation for Territorial purposes.

Percentage distributed for the forty-eighth fiscal year 65 per cent.
Percentage distributed for the forty-ninth fiscal year 71 per cent.

SCHEDULE No. 3.—*List of banks holding Territorial funds.*

Name of bank.	Amount applied for.	Amount of bond.	Amount of interest paid.	Balances in bank Dec. 3, 1898.
Albuquerque National Bank, general depository			$962.17	
Albuquerque National Bank, special			1,357.50	
The Bank of Commerce, Albuquerque, N. Mex	$20,000.00	$40,000.00	133.95	$2,277.96
First National Bank, Las Vegas, N. Mex	30,000.00	60,000.00	987.08	14,087.00
First National Bank, Albuquerque, N. Mex	30,000.00	60,000.00	1,026.56	25,086.89
Taos County Bank	10,000.00	20,000.00	395.36	5,088.42
New Mexico Savings and Trust Co., Albuquerque, N. Mex				1,583.28
San Miguel National Bank, Las Vegas, N. Mex	30,000.00	60,000.00	993.50	14,085.75
First National Bank, Raton, N. Mex	15,000.00	30,000.00	557.07	7,047.35
The Bank of Roswell	15,000.00	30,000.00	548.93	7,048.41
Total			6,962.12	76,255.06

SCHEDULE No. 4.—*Special amount of moneys paid treasurer by the district court clerks.*

Clerk.	District.	Fourth quarter, 1896.	First quarter, 1897.	Second quarter, 1897.	Third quarter, 1897.	Fourth quarter, 1897.	First quarter, 1898.	Second quarter, 1898.	Third quarter, 1898.	Total.	Per cent of fees to salary.
Geo. L. Wyllys	1st.	$288.60									
C. H. Gildersleeve	1st.		$246.50	$252.35	$218.10	$337.20	$196.05				
A. M. Bergere	1st.						181.41	$215.40	$189.75	$2,125.36	42
O. N. Marron	2d	293.10	764.65	1,050.00	457.50	468.65					
H. P. Owen	2d					92.90	524.59	453.60	391.95	4,496.94	89
W. B. Walton	3d	309.10	407.10	420.90	423.85	210.15	223.40				
W. P. Mitchell	3d							601.20	278.95	2,874.65	57
Felix Martinez	4th	415.90	504.05	486.50	541.45	490.85	228.20				
Secundino Romero	4th						188.85	218.05	188.70	3,257.05	65
Geo. Curry	5th	64.90									
W. M. Driscoll	5th	312.40	298.30	287.90	417.05	626.99	706.60	585.00			
J. E. Griffith	5th								230.85	3,526.99	70
Total		1,684.00	2,220.60	2,497.65	2,057.95	2,226.26	2,241.10	2,073.25	1,280.20	16,280.99	46

SCHEDULE NO. 5.—*Receipts and disbursements for the fourth quarter of the forty-seventh fiscal year, beginning November 30, 1896, and ending February 27, 1897.*

Title of fund or account.	Balances Nov. 28, 1896.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances Feb. 27, 1897.
Interest fund	$5,847.78	$116.04	$2,916.94		$5,960.58	$2,920.18
Licenses	667.91	2,610.03			2,186.59	1,091.35
Penitentiary current expense fund	3,615.26		1,788.52		2,387.98	3,015.80
Salary fund	8,097.81	1,684.00	1,835.56		7,901.67	3,715.70
Court fund	157.85		55.16			213.01
Miscellaneous fund	7,478.81		2,379.71		5,863.27	3.995.25
Compensation of assessors fund	1,748.01	3,309.61			4,138.64	918.98
Transportation of convicts	388.91		266.12		339.74	315.29
University of New Mexico	4,221.46	4.80	3,124.52		5,940.00	1,410.28
Agricultural College	397.90	11.18	2,061.42		969.33	1,501.17
New Mexico School of Mines	110.64	2.14	2,010.41		1,000.00	1,123.19
New Mexico Insane Asylum	873.29	2.14	4,455.36		3,443.99	1,886.80
Cattle indemnity fund	2,748.40	4,748.23			5,308.27	2,188.36
Interest on deposits	1,226.19	2,555.69			2,011.17	1,770.71
Deficit fund, forty-second fiscal year	154.60					154.60
Deficiency fund, forty-sixth fiscal year	544.63		289.54			834.17
Special court fund	2,534.99				487.19	2,047.80
Normal school, New Mexico (Silver City)	104.16	21.86	1,976.36		1,247.02	855.36
Normal school, New Mexico (Las Vegas)	389.86	21.85	1,976.36		961.29	1,426.78
Territorial purposes, forty-seventh fiscal year		7,492.49		$7,492.49		
Territorial institutions, forty-seventh fiscal year		2,185.24		2,185.24		
New Mexico Military Institute	920.46		1,901.49			2,821.95
Territorial purposes, forty-eighth fiscal year	546.99	48,755.71			5,851.92	43,450.78
Territorial institutions, forty-eighth fiscal year	159.52	14,293.29		14,452.81		
Territorial purposes, forty-sixth fiscal year		2,039.06		2,039.06		
Territorial institutions, forty-sixth fiscal year		510.74		510.74		
Territorial institutions, forty-fifth fiscal year		357.13		357.13		
Deficit fund, forty-fourth fiscal year	38.80				38.80	
Territorial normal institutes	29.18	9.71				38.89
Branch agricultural experiment station	66.25	18.06			66.25	18.06
School fund	236.70				101.80	134.90
Total	43,806.36	90,748.50	27,037.47	27,037.47	56,205.50	77,849.36

RECAPITULATION.

Balances, November 28, 1896	$43,806.36
Receipts during quarter	90,748.50
Total to be accounted for	134,054.86
Payments during quarter	56,205.50
Balances, February 27, 1897	77,849.36

SCHEDULE NO. 6.—*Receipts and disbursements duriny the forty-eighth fiscal year, March 1, 1897, to March 5, 1898.*

Title of fund or account.	Balances Mar. 1, 1897.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances Mar. 5, 1895.
Interest fund	$2,920.18	$23,609.19	$55,470.00		$69,495.00	$12,504.37
Licenses	1,091.35	3,699.66		$2,344.73	2,446.28	
Penitentiary current expense fund	3,015.80	9,388.89	45,187.09	3.11	41,694.16	15,894.51
Salary fund	3,715.70	9,002.44	36,416.43		34,677.79	14,456.78
Court fund	213.01		1,179.96		915.02	477.95
Miscellaneous fund	3,995.25	108.50	50,068.35	12.69	33,768.91	20,390.50
Compensation of assessors fund	918.98	9,515.41			8,898.27	1,536.12
Transportation of convicts	315.29		4,895.65		3,426.35	1,784.59
University of New Mexico	1,410.28	.05	7,210.90		5,550.00	3,071.23
Agricultural College	1,501.17	.47	4,803.92		4,285.75	2,019.81
New Mexico School of Mines	1,123.19	.03	4,802.72		4,805.00	1,120.94
New Mexico Insane Asylum	1,886.80	30,000.03	13,426.95		41,804.26	3,509.52
Cattle indemnity fund	2,188.36	16,990.46			16,090.02	3,088.80
Interest on deposits	1,770.71	2,477.27			2,100.12	2,147.86
Deficit fund, forty-second fiscal year	154.60					154.60
Deficiency fund, forty-sixth fiscal year	834.17		24.70		855.87	3.00
Special court fund	2,047.80				800.19	1,247.61
Normal school, New Mexico (Silver City)	855.36	1.09	4,799.82		4,612.07	1,044.20
Normal school, New Mexico (Las Vegas)	1,426.78	1.09	4,799.82		3,844.63	2,383.06
Territorial purposes, forty-seventh fiscal year		10,688.64		10,688.64		
Territorial institutions, forty-seventh fiscal year		3,118.45		3,118.45		
New Mexico Military Institute	2,821.95		4,795.96		5,200.00	2,417.91
Territorial purposes, forty-eighth fiscal year	43,450.78	80,474.92		120,711.70	3,214.00	
Territorial institutions, forty-eighth fiscal year		23,542.80		23,542.80		
Capitol rebuilding fund		73,125.00			14,773.71	58,351.29
Corporation fund		1,834.00			1,626.40	207.60
The legal expense fund			1,500.00		1,272.25	227.75
Territorial purposes, forty-ninth fiscal year		60,768.08		60,768.08		
Territorial institutions, forty-ninth fiscal year		17,926.97		17,926.97		
Capitol contingent sinking fund		4,520.42				4,520.42
Special tax		10,619.11				10,619.11
Sheep sanitary fund		601.61				601.61
Territorial institutions, forty-fifth fiscal year		8.47		8.47		
United States annual appropriation, agricultural college		23,000.00			23,000.00	
Territorial normal institutes	38.89	.45		39.34		
Branch agricultural experiment station	18.06	.87			18.93	
School fund	134.90	1,080.00			1,214.90	
Territorial purposes, forty-sixth fiscal year		173.89		173.89		
Territorial institutions, forty-sixth fiscal year		43.40		43.40		
Total	77,849.36	416,321.66	239,382.27	239,382.27	330,389.88	163,781.14

RECAPITULATION.

Balances, March 1, 1897	$77,849.36
Receipts during the forty-eighth fiscal year	416,321.66
Total to be accounted for	494,171.02
Payments during the forty-eighth fiscal year	330,389.88
Balances, March 5, 1898	163,781.14

SCHEDULE NO. 7.—*Receipts and disbursements three quarters of the forty-ninth fiscal year, March 7, 1898, to December 3, 1898.*

Title of fund or account.	Balances Mar. 7, 1898.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances Dec. 3, 1898.
Interest fund	$12,504.37	$28,000.00	$28,765.58		$69,265.00	$4.95
Licenses		12.27			2.00	10.27
Penitentiary current expense fund	15,894.51	5,062.01	18,509.52		32,152.82	7,313.22
Salary fund	14,456.78	5,504.55	15,965.19		27,463.49	8,553.03
Court fund	477.95		528.40		567.95	438.40
Miscellaneous fund	20,390.50		22,014.50		33,520.49	8,884.51
Compensation of assessor's fund	1,536.12	5,751.79			5,941.89	1,346.02
Transportation of convicts	1,784.59		2,284.91		3,708.34	361.16
University of New Mexico	3,071.23		3,799.75		6,190.00	680.98
Agricultural college	2,019.81		2,533.15		4,149.52	403.44
New Mexico School of Mines	1,120.94		2,533.15		2,850.00	804.09
New Mexico Insane Asylum	3,509.52		8,981.75		11,115.78	1,375.49
Cattle indemnity fund	3,088.80	9,923.55			12,665.80	346.55
Interests on deposits	2,147.86	1,949.16			876.76	3,220.26
Deficit fund, forty-second fiscal year	154.60					154.60
Defic ency fund, forty-sixth fiscal year	3.00				3.00	
Special court fund	1,247.61					1,247.61
Normal school, New Mexico, (Silver City)	1,044.20		2,533.15		3,173.91	403.44
Normal school, New Mexico (Las Vegas)	2,383.06		2,533.15		4,512.77	403.44
Territorial purposes, forty-seventh fiscal year		3,146.87		$3,146.87		
Territorial institutions, forty-seventh fiscal year		918.48		918.48		
New Mexico Military Institute	2,417.91		2,533.15		4,500.00	451.06
Territorial purposes, forty-eighth fiscal year		7,151.17		7,151.17		
Territorial institutions, forty-eighth fiscal year		2,100.52		2,100.52		
Capitol rebuilding fund	58,351.29	69.58			31,097.94	27,322.93
Corporation fund	207.60	1,674.00		1,292.44	589.16	
The legal expense fund	227.75				227.75	
Territorial purposes, forty-ninth fiscal year		76,477.62	1,292.44	77,770.06		
Territorial institutions, forty-ninth fiscal year		22,428.25		22,428.25		
Capitol contingent sinking fund	4,520.42	5,528.87				10,049.29
Special tax	10,619.11	13,886.48			21,763.24	2,742.35
Sheep sanitary fund	601.61	912.49			865.00	649.10
Compilation fund		1,878.50			1,836.00	42.50
Territorial purposes, fiftieth fiscal year		1,477.72				1,477.72
Territorial institutions, fiftieth fiscal year		436.17				436.17
United States annual appropriation, agricultural college		24,000.00			24,000.00	
Total	163,781.14	218,380.05	114,807.79	114,807.79	303,038.61	79,122.58

RECAPITULATION.

Balances, March 7, 1898	$163,781.14
Receipts during the three quarters of the forty-ninth fiscal year	218,380.05
Total to be accounted for	382,161.19
Payments during the three quarters of the forty-ninth fiscal year	303,038.61
Balances, December 3, 1898	79,122.58

Schedule No. 8.—*Samuel Eldodt, Territorial treasurer, in account with the Territory of New Mexico.*

Dr.			Cr.		
Nov. 28, 1896	To balance on hand	$43,746.49	Nov. 20, 1897	By warrants, coupons, and other paid evidences of indebtedness destroyed, as per certificate of governor and auditor	$295,136.35
	Receipts from all sources from Nov. 30, 1896, to Dec. 3, 1898, both dates inclusive, from taxes paid by collectors	446,930.91	Nov. 29, 1898	By warrants, coupons, and other paid evidences of indebtedness destroyed, as per certificate of governor and auditor	385,313.06
	From taxes paid by county treasurers	3,857.40	Dec. 3, 1898	By balance on hand	88,747.29
	From taxes paid by district attorneys	1,534.59			
	From taxes paid per order of court	739.83			
	From fees paid by district court clerks	16,280.99			
	From cattle sanitary board	26,000.00			
	From interest on deposits	6,982.12			
	From proceeds of convicts' earnings and support of United States prisoners, from superintendent of New Mexico penitentiary	14,450.90			
	Pullman Palace Car Company	209.47			
	Repayments	196.50			
	Proceeds of capitol rebuilding bonds	73,125.00			
	Proceeds of Insane Asylum	30,000.00			
	From Auditor, insurance company licenses	1,080.00			
	From sale of Compiled Laws of 1897	1,878.50			
	Money borrowed to complete payment of interest coupons under section 2607, Compiled Laws of 1897	51,600.00			
	United States annual appropriation for the college of agriculture and mechanic arts, Las Cruces	47,000.00			
	From fees paid by the secretary of the Territory of New Mexico	3,584.00			
	Total	769,196.70		Total	769,196.70

Balance consists of—	
Cash on hand in bank	$79,122.58
Warrants paid since November 21, 1898	2,824.71
Coupons paid since November 21, 1898	6,800.00

SCHEDULE NO. 9.—*List of fire insurance companies that complied with chapter 49, laws of 1897.*

Name of company.	Location.	Kind of security.	
Ætna Fire Insurance Co	Hartford, Conn	Capitol rebuilding bonds of the Territory of New Mexico.	$10,000
American Central	St. Louis, Mo	Cash deposit	10,000
Atlas Fire Assurance Co	London, England	Provisional indebtedness bonds $1,000, casual deficit bonds $6,000, refunding bonds $3,000.	10,000
British America Assurance Co	Toronto, Canada	Real estate mortgage	10,000
Continental Insurance Co	New York, N. Y	Provisional indebtedness bonds of the Territory of New Mexico.	10,000
Fire Association of Philadelphia	Philadelphia, Pa	Real estate mortgage	11,000
Fireman's Fund Insurance Co	San Francisco, Cal	Cash deposit	10,000
Hartford Fire Insurance Co	Hartford, Conn	Real estate mortgage	10,000
Insurance Company of North America.	Philadelphia, Pa	Provisional bonds of the Territory of New Mexico $2,000, Grant County funding bonds $8,000.	10,000
Liverpool and London and Globe Insurance Co.	Liverpool, England	Funding bonds of Socorro County $5,000, funding bonds of Bernalillo County $5,000.	10,000
London and Lancashire Insurance Co.	do	Grant County, N. Mex., railroad bonds.	10,000
National Fire Insurance Co	Hartford, Conn	City of Silver City, N. Mex., gold refunding bonds.	10,000
North British and Mercantile Insurance Co.	London, England	Territorial institutions bonds of the Territory of New Mexico.	10,000
Niagara Fire Insurance Co	New York, N. Y	Provisional indebtedness bonds of the Territory of New Mexico.	10,000
Northern Assurance Co	London, England	Cash deposit	10,000
Norwich Union Fire Insurance Co.	Norwich, England	Capitol contingent fund bonds $5,000, cash deposit $5,000.	10,000
Orient Fire Insurance Co	Hartford, Conn	Cash deposit	10,000
Palatine Insurance Co	Manchester, England.	Real estate mortgage $8,000, cash deposit $2,000.	10,000
Royal Insurance Co	Liverpool, England	Capitol contingent fund bonds of the Territory of New Mexico.	10,000
Scottish Union and National Insurance Co.	Edinburgh, Scotland	Cash deposit	10,000
Springfield Fire and Marine Insurance Co.	Springfield, Mass	Real estate mortgage	10,000
St. Paul Fire and Marine Insurance Co.	St. Paul, Minn	Grant County current expense bonds $3,000, Grant County funding bonds $7,000.	10,000

SCHEDULE No. 10.—*Statement of the debt of the Territory of New Mexico.*

Title of bond.	Law of issue.	Amount outstanding.	Date of bond.	Rate of interest.	When interest is payable.
				P. ct.	
Capitol building bonds.	Sec. 2527, C. L.	$100,000 100,000	Sept. 1, 1884 Mar. 1, 1885	7	March and September.
Capitol contingent fund bonds.	Chap. 45, Laws of 1887, p. 88	50,000	Apr. 1, 1887	6	January and July.
Current expense bonds.	Chap. 44, Laws of 1887, p. 86	50,000 50,000 50,000	May 2, 1887 Nov. 1, 1887 May 1, 1888	6	May. November. May.
Provisional indebtedness bonds.	Chap. 122, Laws of 1889, p. 295.	100,000 100,000	May 1, 1889 Sept. 2, 1889	6	March and September.
Insane Asylum bonds.	Chap. 39, Laws of 1891, p. 87	25,000	Oct. 1, 1891	6	January and July.
Casual deficit bonds.	Sec. 7, chap. 61, Laws of 1893, p. 102.	101,800	May 1, 1893	5	Do.
Refunding bonds.	Sec. 7, chap. 61, Laws of 1893, p. 104.	104,000	July 1, 1893	6	Do.
Penitentiary refunding bonds.	Sec. 11, chap. 61, Laws of 1893, p. 105.	71,000 10,000	July 1, 1894 Jan. 1, 1895	6	March and September.
Territorial institution bonds.	Sec. 1, chap. 44, Laws of 1895.	35,000	July 1, 1895	5	January and July.
New Mexico Military Institute bonds.	Sec. 1, chap. 42, Laws of 1895.	15,000	do	5	Do.
Insane Asylum bonds.	Sec. 1, chap. 43, Laws of 1895.	30,000	do	5	Do.
Capitol rebuilding bonds.	Sec. 7, chap. 39, Laws of 1895.	25,000 50,000	May 1, 1895 Nov. 1, 1895	5	May and November.
Capitol rebuilding bonds (second series).	Sec. 1, chap. 9, Laws of 1899	60,000	May 1, 1899	4	Do.
Certificates of indebtedness, series A.	Sec. 1, chap. 59, Laws of 1899.	47,000	do	6	March and September.
Certificates of indebtedness, series B.	Sec. 1, chap. 59, laws of 1899	62,400	do	6	Do.
Approved claims to be refunded by certificates of indebtedness, series B.	Sec. 1, chap. 59, laws of 1899	7,200	do	6	Do.

Total Territorial debt, June 30, 1899, $1,243,400.

Quarterly statement of the Territorial treasurer of New Mexico, fourth quarter of the forty-eighth fiscal year, beginning November 29, 1897, and ended March 5, 1898.

Title of fund or account.	Balances Nov. 29, 1897.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances Mar. 5, 1898.
Interest fund	$6,841.04		$22,540.83		$16,877.50	$12,504.37
Licenses	2,417.84	$60.17		$2,344.73	133.28	
Penitentiary current expense fund	6,878.04	2,397.30	14,504.51	3.11	7,882.23	15,894.51
Salary fund	5,332.44	2,226.24	14,816.75		7,918.65	14,456.78
Court fund	123.49		413.26		58.80	477.95
Miscellaneous fund	11,039.30		17,217.35	12.69	7,853.46	20,390.50
Compensation of assessors fund	944.95	4,607.55			4,016.38	1,536.12
Transportation of convicts	357.67		1,784.59		357.67	1,784.59
University of New Mexico	791.47		3,029.76		750.00	3,071.23
Agricultural college	2,148.07		2,019.81		2,148.07	2,019.81
New Mexico School of Mines	381.13		2,019.81		1,280.00	1,120.94
New Mexico Insane Asylum	5,817.29		7,168.05		9,475.82	3,509.52
Territorial normal institutes	39.34			39.34		
Cattle indemnity fund	1,511,73	5,826.64			4,249.57	3,088.80
School fund	28.34				28.34	
Interest on deposits	1,378.05	769.81				2,147.86
Deficit fund, forty-second fiscal year	154.60					154.60
Deficiency fund, forty-sixth fiscal year	22.48				19.48	3.00
Special court fund	1,251.12				3.51	1,247.61
Normal school, New Mexico (Silver City)	363.25		2,019.81		1,338.86	1,044.20
Normal school, New Mexico (Las Vegas)	363.25		2,019.81			2,383.06
Territorial purposes, forty-seventh fiscal year		1,998.67		1,998.67		
Territorial institutions, forty-seventh fiscal year		583.66		583.66		
New Mexico Military Institute	398.10		2,019.81			2,417.91
Territorial purposes, forty-eighth fiscal year		6,110.67		6,110.67		
Territorial institutions, forty-eighth fiscal year		1,786.23		1,786.23		
Capitol rebuilding fund	61,577.21				3,225.92	58,351.29
Corporation fund	97,60	769.00			659.00	207.60
The legal expense fund	227.75					227.75
United States annual appropriation for agricultural college	23,000.00				23,000.00	
Territorial purposes, forty-ninth fiscal year	567.48	60,200.60		60,768.08		
Territorial institutions, forty-ninth fiscal year	180.51	17,746.46		17,926.97		
Capitol contingent sinking fund	40.52	4,479.90				4,520.42
Special tax	101.33	10,517.78				10,619.11
Sheep sanitary fund	15.38	586.23				601.61
Total	134,890.77	120,666.91	91,574.15	91,574.15	91,276.54	163,781.14

RECAPITULATION.

Balances November 29, 1897	$134,390.77
Receipts during quarter	120,666.91
Total to be accounted for	255,057.68
Payments during quarter	91,276.54
Balances March 5, 1898	163,781.14

DISPOSITION OF FUNDS.

First National Bank of Santa Fe	$14,266.77
Bank of Commerce, Albuquerque	2,226.84
First National Bank of Las Vegas	29,503.89
First National Bank of Albuquerque	29,490.28
Taos County Bank	9,734.07
New Mexico Savings Bank and Trust Company	1,583.28
San Miguel National Bank	29,476.70
First National Bank of Raton	14,772.47
The Bank of Roswell	14,641.71
National Bank of Commerce of New York	18,085.13
Total	163,781.14
Funds not available	1,583.28
Funds available	162,197.86
Deduct interest due	18,085.13
Free cash balance	144,112.73

Quarterly statement of the Territorial treasurer of New Mexico, first quarter of the forty-ninth fiscal year, beginning March 7, 1898, and ending May 28, 1898.

Title of fund or account.	Balances Mar. 7, 1898.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances May 28, 1898.
Interest fund	$12,504.37		$5,187.26		$12,500.00	$5,191.63
Licenses		$3.07				3.07
Penitentiary current expense fund	15,894.51	1,901.49	3,414.71		6,591.60	14,619.11
Salary fund	14,456.78	2,241.10	2,886.95		8,284.05	11,300.78
Court fund	477.95		96.12		92.00	482.07
Miscellaneous fund	20,390.50		4,021.81		10,186.94	14,225.37
Compensation of assessors fund	1,536.12	1,046.35			1,528.52	1,053.95
Transportation of convicts	1,784.59		413.88		1,774.44	424.03
University of New Mexico	3,071.23		719.11		3,000.00	790.34
Agricultural college	2,019.81		479.40		2,019.81	479.40
New Mexico School of Mines	1,120.94		479.40		1,000.00	600.34
New Mexico Insane Asylum	3,509.52		1,600.32		3,509.52	1,600.32
Cattle indemnity fund	3,068.80	2,223.49			4,470.99	841.30
Interest on deposits	2,147.86	822.80			500.00	2,470.66
Deficit fund, forty-second fiscal year	154.60					154.60
Deficiency fund, forty-sixth fiscal year	3.00				3.00	
Special court fund	1,247.61					1,247.61
Normal school, New Mexico (Silver City)	1,044.20		479.40		1,044.20	479.40
Normal school, New Mexico (Las Vegas)	2,383.06		479.40		2,383.06	479.40
Territorial purposes, forty-seventh fiscal year		1,048.31		$1,048.31		
Territorial institutions, forty-seventh fiscal year		305.47		305.47		
New Mexico Military Institute	2,417.91		479.40		2,400.00	497.31
Territorial purposes, forty-eighth fiscal year		2,900.57		2,900.57		
Territorial institutions, forty-eighth fiscal year		846.21		846.21		
Capitol rebuilding fund	58,351.29				5,027.29	53,324.00
Corporation fund	207.60	1,021.00			588.16	640.44
The legal expense fund	227.75					227.75
Territorial purposes, forty-ninth fiscal year		12,071.85		12,071.85		
Territorial institutions, forty-ninth fiscal year		3,564.75		3,564.75		
Capitol contingent sinking fund	4,520.42	856.72				5,377.14
Special tax	10,619.11	2,139.63			9,877.64	3,381.10
Sheep sanitary fund	601.61	264.10				865.71
Compilation fund		161.50				161.50
Total	163,781.14	33,418.41	20,737.16	20,737.16	76,281.22	120,918.33

RECAPITULATION.

Balances March 7, 1898	$163,781.14
Receipts during quarter	33,418.41
Total to be accounted for	197,199.55
Payments during quarter	76,281.22
Balances May 28, 1898	120,918.33

DISPOSITION OF FUNDS.

First National Bank of Santa Fe	$1,886.47
Bank of Commerce, Albuquerque	2,243.38
First National Bank of Las Vegas	20,683.20
First National Bank of Albuquerque	20,670.95
Taos County Bank	7,100.09
New Mexico Savings Bank and Trust Company	1,583.28
San Miguel National Bank	20,659.45
First National Bank of Raton	10,070.94
The Bank of Roswell	10,040.75
National Bank of Commerce of New York	25,979.82
Total	120,918.33
Funds not available	1,583.28
Funds available	119,335.05
Deduct interest due	25,979.82
Free cash balance	93,355.23

Quarterly statement of the Territorial treasurer of New Mexico, second quarter of the forty-ninth fiscal year, beginning May 30, 1898, and ending September 3, 1898.

Title of fund or account.	Balances May 30, 1898.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances Sept. 3, 1898.
Interest fund	$5,191.63	$12,500.00	$19,113.48		$36,510.00	$295.11
Licenses	3.07				2.00	1.07
Penitentiary current expense fund	14,619.11	1,410.80	12,194.46		17,845.56	10,378.81
Salary fund	11,300.78	2,073.25	10,592.30		9,534.03	14,432.30
Court fund	482.07		349.89		103.00	728.96
Miscellaneous fund	14,225.37		14,550.44		14,326.79	14,449.02
Compensation of assessors fund	1,053.95	3,870.14			3,220.08	1,704.01
Transportation of convicts	424.03		1,514.67		1,440.16	498.54
University of New Mexico	790.34		2,475.48		790.00	2,475.82
Agriculture College	479.40		1,650.31		479.40	1,650.31
New Mexico School of Mines	600.34		1,650.31		600.00	1,650.65
New Mexico Insane Asylum	1,600.32		6,005.94		5,258.85	2,347.41
Cattle indemnity fund	841.30	5,429.29			3,922.75	2,347.84
Interests on deposits	2,470.66	550.84			254.16	2,767.34
Deficit fund, forty-second fiscal year	154.60					154.60
Special court fund	1,247.61					1,247.61
Normal School, New Mexico (Silver City)	479.40		1,650.31		479.40	1,650.31
Normal School, New Mexico (Las Vegas)	479.40		1,650.31		479.40	1,650.31
Territorial purposes, forty-seventh fiscal year		1,135.87		$1,135.87		
Territorial institutions, forty-seventh fiscal year		332.39		332.39		
New Mexico Military Institute	497.31		1,650.31			2,147.62
Territorial purposes, forty-eighth fiscal year		2,464.78		2,464.78		
Territorial institutions, forty-eighth fiscal year		733.43		733.43		
Capitol rebuilding fund	53,324.00	69.58			13,753.25	39,640.33
Corporation fund	640.44	653.00		1,292.44	1.00	
The legal expense fund	227.75					227.75
Territorial purposes, forty-ninth fiscal year		53,422.15	1,292.44	54,714.59		
Territorial institutions, forty-ninth fiscal year		15,667.15		15,667.15		
Capitol contingent sinking fund	5,377.14	3,773.90				9,151.04
Special tax	3,381.10	9,542.19			1,389.99	11,533.30
Sheep sanitary fund	865.71	430.25			865.00	430.96
Compilation fund	161.50	1,309.00			1,000.00	470.50
United States annual appropriation for agriculture college		24,000.00			24,000.00	
Total	120,918.33	139,368.01	76,340.65	76,340.65	136,254.82	124,031.52

RECAPITULATION.

Balances May 30, 1898	$120,918.33
Receipts during quarter	139,368.01
Total to be accounted for	260,286.34
Payments during quarter	136,254.82
Balances September 3, 1898	124,031.52

DISPOSITION OF FUNDS.

First National Bank of Santa Fe	$605.28
Bank of Commerce, Albuquerque	2,260.61
First National Bank of Las Vegas	23,564.10
First National Bank of Albuquerque	23,564.52
Taos County Bank	8,546.07
New Mexico Savings Bank and Trust Company	1,583.28
San Miguel National Bank	23,564.50
First National Bank of Raton	11,540.33
The Bank of Roswell	11,509.67
National Bank of Commerce of New York	17,293.16
Total	124,031.52
Funds not available	1,583.28
Funds available	122,448.24
Deduct interest due	17,293.16
Free cash balance	105,155.08

Quarterly statement of the Territorial treasurer of New Mexico, third quarter of the forty-ninth fiscal year, beginning September 5, 1898, and ending December 3, 1898.

Title of fund or account.	Balances Sept. 5, 1898.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances Dec. 3, 1898.
Interest fund	$295.11	$15,500.00	$4,464.84		$20,255.00	$4.95
Licenses	1.07	9.20				10.27
Penitentiary current expense fund	10,378.81	1,749.72	2,900.35		7,715.66	7,313.22
Salary fund	14,432.30	1,280.20	2,485.94		9,645.41	8,553.03
Court fund	728.96		82.39		372.95	438.40
Miscellaneous fund	14,449.02		3,442.25		9,006.76	8,884.51
Compensation of assessors fund	1,704.01	835.30			1,193.29	1,346.02
Transportation of convicts	498.54		356.36		493.74	361.16
University of New Mexico	2,475.82		605.16		2,400.00	680.98
Agriculture College	1,650.31		403.44		1,650.31	403.44
New Mexico School of Mines	1,650.65		403.44		1,250.00	804.09
New Mexico Insane Asylum	2,347.41		1,375.49		2,347.41	1,375.49
Cattle indemnity fund	2,347.84	2,270.77			4,272.06	346.55
Interests on deposits	2,767.34	575.52			122.60	3,220.26
Deficit fund forty-second fiscal year	154.60					154.60
Special court fund	1,247.61					1,247.61
Normal School, New Mexico (Silver City)	1,650.31		403.44		1,650.31	403.44
Normal School, New Mexico (Las Vegas)	1,650.31		403.44		1,650.31	403.44
Territorial purposes, forty-seventh fiscal year		962.69		$962.69		
Territorial institutions, forty-seventh fiscal year		280.62		280.62		
New Mexico Military Institute	2,147.62		403.44		2,100.00	451.06
Territorial purposes, forty-eighth fiscal year		1,785.82		1,785.82		
Territorial institutions, forty-eighth fiscal year		520.88		520.88		
Capitol rebuilding fund	39,640.33				12,317.40	27,322.93
The legal expense fund	227.75				227.75	
Territorial purposes, forty-ninth fiscal year		10,983.62		10,983.62		
Territorial institutions, forty-ninth fiscal year		3,196.35		3,196.35		
Capitol contingent sinking fund	9,151.04	898.25				10.049.29
Special tax	11,533.30	2.204.66			10,995.61	2,742.35
Sheep sanitary fund	430.96	218.14				649.10
Compilation fund	470.50	408.00			836.00	42.50
Territorial purposes, fiftieth fiscal year		1,477.72				1,477.72
Terrritorial institutions, fiftieth fiscal year		436.17				436.17
Total	124,031.52	45,593.63	17,729.98	17,729.98	90,502.57	79,122.58

RECAPITULATION.

Balances September 5, 1898	$124,031.52
Receipts during quarter	45,593.63
Total to be accounted for	169,625.15
Payments during quarter	90,502.57
Balances December 3, 1898	79,122.58

DISPOSITION OF FUNDS.

First National Bank of Santa Fe	$992.81
Bank of Commerce, Albuquerque	2,277.96
First National Bank of Las Vegas	14,087.00
First National Bank of Albuquerque	25,086.89
Taos County Bank	5,038.42
New Mexico Savings Bank and Trust Company	1,583.28
San Miguel National Bank	14,085.75
First National Bank of Raton	7,047.35
The Bank of Roswell	7,048.41
National Bank of Commerce of New York	1,874.71
Total	79,122.58
Funds not available	1,583.28
Funds available	77,539.30
Deduct interest due	1,874.71
Free cash balance	75,664.59

Quarterly statement of the Territorial treasurer of New Mexico, fourth quarter of the forty-ninth fiscal year, beginning December 5, 1898, and ending March 4, 1899.

Title of fund or account.	Balances Dec. 5, 1898.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances Mar. 4, 1899.
Interest fund	$4.95		$2,989.79			$2,994.74
Licenses	10.27	$88.49			$75.00	23.76
Penitentiary current expense fund	7,313.22	1,051.21	1,957.06		7,170.83	3,150.66
Salary fund	8,553.03	1,671.70	1,669.49		8,691.81	3,202.41
Court fund	438.40		55.88		237.45	256.83
Miscellaneous fund	8,884.51		2,319.47		6,951.78	4,252.20
Compensation of assessors fund	1,346.02	4,902.15			3,909.29	2,338.88
Transportation of convicts	361.16		239.66		329.22	271.60
University of New Mexico	680.98		3,212.69		2,130.00	1,763.67
Agriculture College	403.44		2,141.79		1,379.05	1,166.18
New Mexico School of Mines	804.09		2,141.79		1,750.00	1,195.88
New Mexico Insane Asylum	1,375.49		7,906.24		5,034.02	4,247.71
Cattle indemnity fund	346.55	7,763.42			4,808.91	3,301.06
Interests on deposits	3,220.26	518.21			3,570.29	168.18
Deficit fund, forty-second fiscal year	154.60					154.60
Special court fund	1,247.61					1,247.61
Normal School, New Mexico (Silver City)	403.44		2,141.79		1,379.05	1,166.18
Normal School, New Mexico (Las Vegas)	403.44		2,141.79		1,379.05	1,166.18
Territorial purposes, forty-seventh fiscal year		934.07		$934.07		
Territorial institutions, forty-seventh fiscal year		271.87		271.87		
New Mexico Military Institute	451.06		2,141.79		400.00	2,192.85
Territorial purposes, forty-eighth fiscal year		1,573.76		1,573.76		
Territorial institutions, forty-eighth fiscal year		459.83		459.83		
Capitol rebuilding fund	27,322.93				8,679.81	18,643.12
Territorial purposes, forty-ninth fiscal year		6,723.02		6,723.02		
Territorial institutions, forty-ninth fiscal year		1,918.55		1,918.55		
Capitol contingent sinking fund	10,049.29	5,014.55				15,063.84
Special tax	2,742.35	12,542.71			1,412.66	13,872.40
Sheep sanitary fund	649.10	640.51			998.47	291.14
Compilation fund	42.50	263.50			212.50	93.50
Territorial purposes, fiftieth fiscal year	1,477.72	60,766.92			6,695.05	55,549.59
Territorial institutions, fiftieth fiscal year	436.17	18,741.46		19,177.63		
Total	79,122.58	125,845.93	31,058.73	31,058.73	67,194.24	137,774.27

RECAPITULATION.

Balances December 5, 1898	$79,122.58
Receipts during quarter	125,845.93
Total to be accounted for	204,968.51
Payments during quarter	67,194.24
Balances March 4, 1899	137,774.27

DISPOSITION OF FUNDS.

First National Bank of Santa Fe	$8,156.35
Bank of Commerce, Albuquerque	2,295.42
First National Bank of Las Vegas	20,185.00
First National Bank of Albuquerque	25,807.58
Taos County Bank	8,077.10
New Mexico Savings Bank and Trust Company	1,583.28
San Miguel National Bank	20,182.50
First National Bank of Raton	12,102.16
The Bank of Roswell	12,101.80
National Bank of Commerce of New York	26,907.14
Western National Bank of New York	375.94
Total	137,774.27
Funds not available	1,583.28
Funds available	136,190.99
Deduct interest due	27,283.08
Free cash balance	108,907.91

Quarterly statement of the Territorial treasurer of New Mexico, first quarter of the fiftieth fiscal year, beginning March 6, 1899, and ending June 3, 1899.

Title of fund or account.	Balances Mar. 6, 1899.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances June 3, 1899.
Interest fund	$2,994.74		$30,658.47		$33,653.21	
Licenses	23.76				23.76	
Penitentiary current expense fund	3,150.66	$1,250.31	14,824.47		11,916.02	$7,309.42
Salary fund	3,202.41	1,280.95	14,294.83		7,050.57	11,727.62
Court fund	256.33		231.74		130.52	357.55
Miscellaneous fund	4,252.20		15,178.23		8,421.94	11,008.49
Compensation of assessors fund	2,338.88	1,662.89			2,695.39	1,306.38
Transportation of convicts	271.60			$13.79	257.81	
University of New Mexico	1,763.67		961.36		1,750.00	975.03
Agriculture College	1,166.18		640.90		1,166.18	640.90
New Mexico School of Mines	1,195.88		640.90		1,195.88	640.90
New Mexico Insane Asylum	4,247.71		2,403.39		4,247.71	2,403.39
Cattle indemnity fund	3,301.06	872.65			3,307.06	866.65
Interests on deposits	168.18	673.66			274.96	566.88
Deficit fund, forty-second fiscal year	154.60					154.60
Special court fund	1,247.61				1.90	1,245.71
Normal School, New Mexico (Silver City)	1,166.18		640.90		1,166.18	640.90
Normal School, New Mexico (Las Vegas)	1,166.18		640.90		1,166.18	640.90
Territorial purposes, forty-seventh fiscal year		553.04		553.04		
Territorial institutions, forty-seventh fiscal year		162.19		162.19		
New Mexico Military Institute	2,192.85		640.90		2,100.00	733.75
Territorial purposes, forty-eighth fiscal year		561.01		208.30	352.71	
Territorial institutions, forty-eighth fiscal year		163.71		163.71		
Capitol rebuilding fund	18,643.12				9,608.41	9.034.71
Territorial purposes, forty-ninth fiscal year		1,994.07		1,994.07		
Territorial institutions, forty-ninth fiscal year		453.19		453.19		
Capitol contingent sinking fund	15,063.84	1,520.32				16,584.16
Special tax	13,872.40	3,806.30			12,767.05	4,911.65
Sheep sanitary fund	291.14	374.95				666.09
Compilation fund	93.50	68.00			102.00	59.50
Territorial purposes, fiftieth fiscal year	55,549.59	22,857.65	2,755.41	75,173.95	5,988.70	
Territorial institutions, fiftieth fiscal year		5,790.16	779.09	6,569.25		
Total	137,774.27	44,045.05	85,291.49	85,291.49	109,344.14	72,475.18

RECAPITULATION.

Balances March 6, 1899	$137,774.27
Receipts during quarter	44,045.05
Total to be accounted for	181,819.32
Payments during quarter	109,344.14
Balances June 3, 1899	72,475.18

DISPOSITION OF FUNDS.

First National Bank of Santa Fe	$5,950.31
Bank of Commerce, Albuquerque	2,312.86
First National Bank of Las Vegas	11,000.00
First National Bank of Albuquerque	11,000.00
Taos County Bank	4,130.39
New Mexico Savings Bank and Trust Company	1,583.28
San Miguel National Bank	11,000.00
First National Bank of Raton	5,500.00
The Bank of Roswell	5,500.00
National Bank of Commerce of New York	10,626.55
Cash items	3,871.79
Total	72,475.18
Funds not available	1,583.28
Funds available	70,891.90
Deduct interest due	14,498.34
Free cash balance	56,393.56

Quarterly statement of the Territorial treasurer of New Mexico, second quarter of the fiftieth fiscal year, beginning June 4, 1899, and ending September 2, 1899.

Title of fund or account.	Balances June 4, 1899.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances Sept. 2, 1899.
Miscellaneous fund:						
Forty-second fiscal year	$56.00					$56.00
Forty-third fiscal year	37.50					37.50
Forty-seventh fiscal year	5.00					5.00
Fiftieth fiscal year	10,909.99		$16,712.99		$13,129.96	4,492.02
Compensation of assessors' fund:						
Forty-second fiscal year	7.85					7.85
Fiftieth fiscal year	1,298.53	$5,300.32			3,336.21	3,272.64
Deficit fund forty-second fiscal year	154.60					154.60
Deficiency fund fiftieth fiscal year		2,475.00			10.00	2,465.00
Interest fund		11,008.65	26,274.03		40,688.95	33,593.73
Proceeds 37 certificates of indebtedness		37,000.00				
Interests on deposits	566.88	522.73			134.75	954.86
University of New Mexico	975.03		3,167.69		2,731.13	1,411.59
Agricultural college	640.90		2,111.79		640.90	2,111.79
New Mexico School of Mines	640.90		2,111.79		640.90	2,111.79
New Mexico Insane Asylum	2,403.39		7,919.24		6,793.64	3,528.99
New Mexico Military Institute	733.75		2,111.79		1,900.00	945.54
Normal School, New Mexico, (Silver City)	640.90		2,111.79		640.90	2,111.79
Normal School, New Mexico, (Las Vegas)	640.90		2,111.79		1,811.63	941.06
Penitentiary current expense fund:						
Forty-seventh fiscal year		768.97			68.50	700.47
Fiftieth fiscal year	7,309.42		16,336.58		10,258.39	15,051.74
Convicts' earnings		859.38				
Support United States prisoners		804.75				
Territorial purposes, forty-seventh fiscal year		1,600.76		$1,600.76		
Territorial purposes, fiftieth fiscal year		76,349.87	1,600.76	75,283.77		2,666.86
Sheep sanitary fund	666.09	811.37			1,400.00	77.46
Cattle indemnity fund	866.65	5,698.28			2,892.38	3,672.55
Capitol rebuilding fund	9,034.71				12,354.04	57,473.17
Proceeds 60 bonds		60,792.50				
Territorial institutions, forty-seventh fiscal year		468.70		468.70		
Territorial institutions, fiftieth fiscal year		21,980.14	468.70	21,645.88		802.96
Capitol contingent sinking fund	16,584.16	5,330.49				21,914.65
Special tax	4,911.65	13,452.06			14,861.82	3,501.89
Compilation fund	59.50	51.00				110.50
Salary fund	11,727.62	1,625.85	15,734.31		9,676.81	19,410.97
Supreme court fund	357.55		225.86		88.90	494.51
Special court fund	1,245.71					1,245.71
Total	72,475.18	246,900.82	98,999.11	98,999.11	124,049.81	195,326.19

RECAPITULATION.

Balances June 3, 1899	$72,475.18
Receipts during quarter	246,900.82
Total to be accounted for	319,376.00
Payments during quarter	124,049.81
Balances September 2, 1899	195,326.19

DISPOSITION OF FUNDS.

First National Bank of Santa Fe	$44,522.93
Bank of Commerce, Albuquerque	2,330.24
First National Bank of Las Vegas	29,937.11
First National Bank of Albuquerque	29,923.28
Taos County Bank	9,914.55
New Mexico Savings Bank and Trust Company	1,583.28
First National Bank of Raton	14,953.07
The Bank of Roswell	14,940.13
National Bank of Commerce of New York	17,260.60
San Miguel National Bank, Las Vegas	29,961.00
Total	195,326.19
Funds not available	1,583.28
Funds available	193,742.91
Deduct interest due	28,260.60
Free cash balance	165,482.31

Quarterly report of the auditor of public accounts of the Territory of New Mexico, giving a detailed statement of the receipts and expenditures during the fourth quarter of the forty-eighth fiscal year, ending March 5, 1898.

RECEIPTS.

Alejandro Sandoval, collector Bernalillo County	$19,106.28
C. W. Haynes, collector Chaves County	7,323.50
Hugh Smith, collector Colfax County	7,539.75
Jacob Schaublin, collector Donna Ana County	9,442.87
M. C. Stewart, collector Eddy County	4,784.66
John L. Burnsite, collector Grant County	13,148.66
Placido Baca y Baca, collector Guadaloupe County	1,855.24
Emil Fritz, collector Lincoln County	6,298.36
Frank A. Vigil, collector Mora County	2,703.04
W. G. Sargent, collector Rio Arriba County	2,540.15
John W. Brown, collector San Juan County	1,458.19
Fred Muller, collector Santa Fe County	5,365.85
Felix Martinez, collector San Miguel County	108.91
Tranquilino Labadie, collector San Miguel County	8,479.37
August Reingardt, collector Sierra County	4,959.84
M. Cooney, collector Socorro County	8,576.10
Silviano Lucero, collector Taos County	1,881.85
Emiterio Gallegos, collector Union County	1,877.73
Solomon Luna, collector Valencia County	3,433.76
E. H. Bergmann, superintendent New Mexico Penitentiary	2,397.30
C. H. Gildersleeve, clerk first judicial district	337.20
O. N. Marron, clerk second judicial district	468.65
H. P. Owen, clerk second judicial district	92.90
W. B. Walton, clerk third judicial district	210.15
Felix Martinez, clerk fourth judicial district	490.35
W. M. Driscoll, clerk fifth judicial district	626.99
J. A. La Rue, secretary cattle sanitary board	4,000.00
George H. Wallace, secretary of the Territory of New Mexico, corporation filing fees	769.00
J. B. Lamy, by order of the court	100.95
Blanche Boyle, by order of the court	19.50
Total	119,897.10

ABSTRACT OF RECEIPTS AND EXPENDITURES DURING THE QUARTER.

	Receipts.	Expenditures.
Licenses	$60.17	$133.28
Penitentiary fund	2,397.30	8,030.73
Salary fund	2,226.24	7,918.65
Assessors fund	4,607.55	4,016.48
Miscellaneous		7,858.46
Transportation of convicts		357.67
Territorial institutions, viz:		
University of New Mexico		750.00
New Mexico Insane Asylum		9,475.82
New Mexico School of Mines		1,280.00
Agricultural college		2,148.07
Normal school, Silver City		1,338.86
Territorial purposes, forty-seventh fiscal year	1,998.67	
Territorial institutions, forty-seventh fiscal year	583.66	
Territorial purposes, forty-eighth fiscal year	6,110.67	
Territorial institutions, forty-eighth fiscal year	1,786.23	
Territorial purposes, forty-ninth fiscal year	60,200.60	
Territorial institutions, forty-ninth fiscal year	17,746.46	
Cattle indemnity	5,826.64	
School fund		28.34
Supreme court fund		58.80
Deficiency fund		22.48
Capitol rebuilding fund		3,371.29
Corporations fund	769.00	659.00
Capitol contingent sinking fund	4,479.90	
Special tax fund	10,517.78	
Sheep sanitary fund	586.23	
Total	119,897.10	47,442.93

Quarterly report of the auditor of public accounts of the Territory of New Mexico, giving a detailed statement of the receipts and expenditures during the first quarter of the forty-ninth fiscal year ending May 28, 1898.

RECEIPTS.

Alejandro Sandoval, collector Bernalillo County	$4,351.83
C. W. Haynes, collector Chaves County	606.65
Hugh Smith, collector Colfax County	4,435.29
Jacob Schaublin, collector Donna Ana County	1,361.69
M. C. Stewart, collector Eddy County	611.46
John L. Burnside, collector Grant County	2,749.36
Placido Baca y Baca, collector Guadaloupe County	247.26
Emil Fritz, collector Lincoln County	468.42
Frank A. Vigil, collector Mora County	646.45
W. G. Sargent, collector Rio Arriba County	109.68
John W. Brown, collector San Juan County	816.84
Fritz Muller, collector Santa Fe County	1,785.94
Tranquillino Labadie, collector San Miguel County	2,232.23
August Reingardt, collector Sierra County	558.15
M. Cooney, collector Socorro County	2,525.91
Silviano Lucero, collector Taos County	250.27
Emiterio Gallegos, collector Union County	1,207.24
Solomon Luna, collector Valencia County	213.88
C. H. Gildersleeve, clerk first judicial district, from January 1 to February 11, 1898	196.05
A. M. Bergere, clerk first judicial district, from February 12 to March 31, 1898	181.41
H. P. Owen, clerk second judicial district, for the quarter ending March 31, 1898	524.59
W. B. Walton, clerk third judicial district, for the quarter ending March 31, 1898	223.40
Felix Martinez, clerk fourth judicial district, for January and February 1898	228.20
Secundino Romero, clerk fourth judicial district, for the month of March, 1898	183.85
W. M. Driscoll, clerk fifth judicial district, for the quarter ending March 31, 1898	703.60
E. H. Bergmann, superintendent New Mexico penitentiary	1,901.49
Pullman Palace Car Company	91.97
J. A. La Rue, secretary cattle sanitary board	2,000.00
George H. Wallace, secretary of the Territory of New Mexico	1,021.00
Sale of compiled laws	161.50
Total	32,595.61

ABSTRACT OF RECEIPTS AND EXPENDITURES DURING THE QUARTER.

	Receipts.	Expenditures.
Licenses	$3.07	
Penitentiary fund	1,901.49	$6,517.05
Salary fund	2,241.10	8,262.45
Assessors' fund	1,046.85	1,528.52
Corporations' fund	1,021.00	569.35
Special tax fund	2,139.63	9,450.59
Capitol contingent sinking fund	856.72	
Sheep sanitary fund	264.10	
Territorial purposes, forty-seventh fiscal year	1,048.31	
Territorial institutions, forty-seventh fiscal year	305.47	
Territorial purposes, forty-eighth fiscal year	2,900.57	
Territorial institutions, forty-eighth fiscal year	846.21	
Territorial purposes, forty-ninth fiscal year	12,071.85	
Territorial institutions, forty-ninth fiscal year	3,564.75	
Cattle indemnity fund	2,223.49	
Compilation fund	161.50	
Miscellaneous fund		10,176.94
Transportation of convicts' fund		1,774.44
Supreme court fund		92.00
Capitol rebuilding fund		4,960.46

ABSTRACT OF RECEIPTS AND EXPENDITURES DURING THE QUARTER—continued.

	Receipts.	Expenditures.
Territorial institutions, viz:		
Agricultural college		$2,019.81
New Mexico Insane Asylum		3,509.52
New Mexico School of Mines		1,000.00
New Mexico Military Institute		2,400.00
University of New Mexico		3,000.00
Normal school, Las Vegas		2,383.06
Normal school, Silver City		1,044.20
Total	$32,595.61	58,688.39

Quarterly report of the auditor of public accounts of the Territory of New Mexico, giving a detailed statement of the receipts and expenditures during the second quarter of the forty-ninth fiscal year ending September 3, 1898.

RECEIPTS.

Alejandro Sandoval, collector Bernalillo County	$12,942.51
C. W. Haynes, collector Chaves County	8,339.15
C. C. Perry, ex-collector Chaves County	330.85
Hugh Smith, collector Colfax County	8,741.98
Jacob Schaublin, collector Donna Ana County	9,922.36
M. C. Stewart, collector Eddy County	3,535.12
John L. Burnside, collector Grant County	8,924.32
Placido Baca y Baca, collector Guadaloupe County	1,238.47
Emil Fritz, collector Lincoln County	5,348.91
Frank A. Vigil, collector Mora County	3,014.79
W. G. Sargent, collector Rio Arriba County	2,678.94
Martin Lopez, ex-collector Rio Arriba County	70.80
John W. Brown, collector San Juan County	576.16
Fred Muller, collector Santa Fe County	4,904.60
Tranquillino Labadie, collector San Miguel County	6,597.67
August Reingardt, collector Sierra County	3,708.48
M. Cooney, collector Socorro County	6,576.98
Silviano Lucero, collector Taos County	503.45
Emiterio Gallegos, collector Union County	1,886.95
Solomon Luna, collector Valencia County	2,959.05
A. M. Bergere, clerk first judicial district	215.40
Harry P. Owen, clerk second judicial district	453.60
J. P. Mitchell, clerk third judicial district	601.20
Secundino Romero, clerk fourth judicial district	218.05
W. M. Driscoll, clerk fifth judicial district	585.00
E. H. Bergmann, superintendent New Mexico penitentiary	1,410.80
J. A. La Rue, secretary cattle sanitary board	4,000.00
Geo. H. Wallace, secretary of the Territory of New Mexico	653.00
A. Staab, secretary capitol rebuilding board	69.58
Compilation fund (sale of compiled laws)	1,309.00
Product of note due First National Bank of Santa Fe to pay interest	12,500.00
Total	114,817.17

ABSTRACT OF RECEIPTS AND EXPENDITURES DURING THE QUARTER.

	Receipts.	Expenditures.
Licenses		$2.00
Penitentiary fund	$1,410.80	17,992.84
Salary fund	2,073.25	9,534.03
Assessors' fund	3,870.14	3,135.88
Corporations' fund	653.00	1.00
Special tax fund	9,542.19	1,399.99
Compilation fund (from sale of compiled laws)	1,309.00	1,000.00
Capitol rebuilding fund	69.58	13,625.71
Capitol contingent sinking fund	3,773.90	
Sheep sanitary fund	430.25	
Territorial purposes, forty-seventh fiscal year	1,135.87	
Territorial institutions, forty-seventh fiscal year	332.39	
Territorial purposes, forty-eighth fiscal year	2,464.78	
Territorial institutions, forty-eighth fiscal year	733.43	
Territorial purposes, forty-ninth fiscal year	53,422.15	
Territorial institutions, forty-ninth fiscal year	15,667.15	
Cattle idemnity fund	5,429.29	
Miscellaneous fund		15,415.76
Transportation of convicts' fund		1,440.16
Supreme court fund		153.00
Territorial institutions fund, viz:		
Agricultural college		479.40
New Mexico Insane Asylum		5,258.85
New Mexico School of Mines		1,850.00
University of New Mexico		790.00
Normal School, Las Vegas		479.40
Normal School, Silver City		479.40
Due First National Bank of Santa Fe	12,500.00	
Total	114,817.17	73,037.42

Quarterly report of the auditor of public accounts of the Territory of New Mexico, giving a detailed statement of the receipts and expenditures during the third quarter of the forty-ninth fiscal year, ending December 3, 1898.

RECEIPTS.

Alejandro Sandoval, collector Bernalillo County	$3,588.28
C. W. Haynes, collector Chaves County	1,712.88
Hugh Smith, collector Colfax County	1,249.27
Jacob Schaublin, collector Donna Ana County	638.96
M. C. Stewart, collector Eddy County	1,934.09
John L. Burnsite, collector Grant County	1,549.31
Placido Baca y Baca, collector Guadaloupe County	212.35
Emil Fritz, collector Lincoln County	515.90
George Sena, ex-collector Lincoln County	356.45
Frank A. Vigil, collector Mora County	145.53
John W. Brown, collector San Juan County	617.65
Fred Muller, collector Santa Fe County	1,041.36
Tranquilino Labadie, collector San Miguel County	1,887.80
August Reingardt, collector Sierra County	445.38
M. Cooney, collector Socorro County	2,426.67
Silviano Lucero, collector Taos County	791.68
Emiterio Gallegos, collector Union County	801.77
Solomon Luna, collector Valencia County	159.91
Frank Kropp, treasurer Donna Ana County	266.07
James Goode, deputy treasurer Union County	3,662.88
A. M. Bergere, clerk first judicial district	189.75
Harry P. Owen, clerk second judicial district	391.95
James P. Mitchell, clerk third judicial district	278.95
Secundino Romero, clerk fourth judicial district	188.70
John E. Griffith, clerk fifth judicial district	230.85
E. H. Bergmann, superintendent New Mexico Penitentiary	1,749.72
J. A. La Rue, secretary cattle sanitary board	2,000.00
George H. Wallace, secretary of the Territory	76.00
Sale of compiled laws, 1897	408.00
Product of note due the First National Bank of Albuquerque to pay interest	15,000.00
Product of note due First National Bank of Santa Fe to pay interest	500.00
Total	45,018.11

ABSTRACT OF RECEIPTS AND EXPENDITURES DURING THE QUARTER.

	Receipts.	Expenditures.
Licenses	$9.20	
Penitentiary current expense fund	1,749.72	$7,497.48
Salary fund	1,280.20	9,645.41
Assessors fund	835.30	1,177.52
Special tax fund	2,204.66	10,985.61
Legal expense fund		227.75
Compilation fund (from sale of compiled laws)	408.00	836.00
Capitol rebuilding fund		12,410.85
Capitol contingent sinking fund	898.25	
Sheep sanitary fund	218.14	
Interest on deposits fund		122.60
Territorial purposes, forty-seventh fiscal year	962.69	
Territorial institutions, forty-seventh fiscal year	280.62	
Territorial purposes, forty-eighth fiscal year	1,785.82	
Territorial institutions, forty-eighth fiscal year	520.88	
Territorial purposes, forty-ninth fiscal year	10,983.62	
Territorial institutions, forty-ninth fiscal year	3,196.35	
Territorial purposes, fiftieth fiscal year	1,477.72	
Territorial institutions, fiftieth fiscal year	436.17	
Cattle indemnity fund	2,270.77	
Miscellaneous fund		8,239.19
Transportation of convicts fund		493.74
Supreme court fund		812.95
Territorial institutions fund, viz:		
University of New Mexico		2,400.00
Agricultural college		1,650.81
New Mexico Insane Asylum		2,347.41
New Mexico Military Institute		2,100.00
Normal school, Silver City		1,650.81
Normal school, Las Vegas		1,650.81
Due First National Bank of Albuquerque	15,000.00	
Due First National Bank of Santa Fe	500.00	
Total	45,018.11	68,747.89

Quarterly report of the auditor of public accounts of the Territory of New Mexico, giving a detailed statement of the receipts and expenditures during the fourth quarter of the forty-ninth fiscal year, ending March 4, 1899.

RECEIPTS.

Alejandro Sandoval, collector Bernalillo County	$5,080.80
J. L. Perea, treasurer and collector Bernalillo County	9,561.57
C. W. Haynes, collector Chaves County	4,121.25
J. A. Gilmore, treasurer and collector Chaves County	1,741.15
Hugh Smith, treasurer and collector Colfax County	11,778.65
A. E. Burnam, treasurer and collector Colfax County	706.17
Jacob Schaublin, collector Donna Ana County	7,918.95
M. C. Stewart, collector Eddy County	4,084.40
J. F. Matheson, treasurer and collector Eddy County	1,966.69
John L. Burnsite, treasurer and collector Grant County	17,037.04
Placido Baca y Baca, collector Guadaloupe County	86.74
Salome Martinez, treasurer and collector Guadaloupe County	969.68
Emil Fritz, collector Lincoln County	4,893.77
R. Michaels, treasurer and collector Lincoln County	649.04
Frank A. Vigil, collector Mora County	5,016.22
J. B. Martinez, treasurer and collector Mora County	335.51
W. G. Sargent, treasurer and collector Rio Arriba County	2,515.22
John W. Brown, collector San Juan County	672.80
Fred Muller, treasurer and collector Santa Fe County	5,438.51
Tranquilino Labadie, collector San Miguel County	636.15
Margarito Romero, treasurer and collector San Miguel County	6,053.01
August Reingardt, collector Sierra County	4,163.51
Will M. Robins, treasurer and collector Sierra County	4,617.08
M. Cooney, collector Socorro County	8,675.28
Abran Abeytia, treasurer and collector Socorro County	435.63
Silviano Lucero, collector Taos County	1,480.80
Donaciano Cordova, treasurer and collector Taos County	427.78
Emiterio Gallegos, collector Union County	1,993.88
Nepomuseno Martinez, treasurer and collector Union County	1,580.84

Solomon Luna, treasurer and collector Valencia County	$2,835.59
Luis M. Ortiz, ex-collector Rio Arriba County, taxes, 1888	84.70
J. A. La Rue, secretary cattle sanitary board	4,500.00
George H. Wallace, secretary Territory of New Mexico	283.00
E. H. Bergmann, superintendent New Mexico Penitentiary	1,051.21
A. M. Bergere, clerk first judicial district	223.60
Harry P. Owen, clerk second judicial district	442.80
James P. Mitchell, clerk third judicial district	425.80
Secundino Romero, clerk fourth judicial district	187.45
John E. Griffith, clerk fifth judicial district	392.05
Sale of compiled laws	263.50
Total	125,327.72

ABSTRACT OF RECEIPTS AND EXPENDITURES DURING THE QUARTER.

	Receipts.	Payments.
Licenses	$88.49	$75.00
Penitentiary current expense fund	1,051.21	7,175.83
Salary fund	1,671.70	8,691.81
Assessors fund	4,902.15	3,914.49
Special tax fund	12,542.71	1,407.66
Compilation fund (from sale of compiled laws)	263.50	212.50
Capitol rebuilding fund		8,608.09
Capitol contingent sinking fund	5,014.55	
Sheep sanitary fund	640.51	332.47
Interest on deposits fund		3,570.29
Territorial purposes, forty-seventh fiscal year	934.07	
Territorial institutions, forty-seventh fiscal year	271.87	
Territorial purposes, forty-eighth fiscal year	1,573.76	
Territorial institutions, forty-eighth fiscal year	459.83	
Territorial purposes, forty-ninth fiscal year	6,723.02	
Territorial institutions, forty-ninth fiscal year	1,918.55	
Territorial purposes, fiftieth fiscal year	60,766.92	6,695.05
Territorial institutions, fiftieth fiscal year	18,741.46	
Cattle indemnity fund	7,763.42	
Miscellaneous fund		6,930.38
Transportation of convicts fund		329.22
Supreme court fund		237.45
Territorial institutions fund:		
University of New Mexico		2,130.00
Agricultural college		1,379.05
New Mexico Insane Asylum		5,084.02
New Mexico School of Mines		1,750.00
New Mexico Military Institute		400.00
Normal school, Silver City		1,397.05
Normal school, Las Vegas		1,397.05
Total	125,327.72	61,667.41

NOTE.—The following appropriations made by the thirty-third legislative assembly were paid from the following funds, and the amounts are included on the column of expenditures above, to wit:

From interest on depoits for the payment of interpreters, translators, etc., as per C. J. R., No. 7	$2,957.75
From salary fund of the forty-sixth fiscal year	42.25
From Territorial purposes fund of the fiftieth fiscal year	1,000.00
From Territorial purposes, from pay of employees, translators, etc., C. J. R., No. 7	4,000.00
From Territorial purposes, fiftieth fiscal year, printing bills and in Spanish	1,695.05
Total	9,695.05

Quarterly report of the auditor of public accounts of the Territory of New Mexico, giving a detailed statement of the receipts and expenditures during the first quarter of the fiftieth fiscal year, ending June 3, 1899.

RECEIPTS.

J. L. Perea, treasurer and collector Bernalillo County	$2,106.16
C. W. Haynes, collector Chaves County	3,070.05
J. A. Gilmore, treasurer and collector Chaves County	1,019.60
A. E. Burnam, treasurer and collector Colfax County	4,688.88
Jacob Schaublin, treasurer and collector Donna Ana County	1,902.34
J. D. Walker, collector Eddy County	2.83
J. F. Matheson, treasurer and collector Eddy County	1,016.86
John L. Burnside, treasurer and collector Grant County	2,308.19

Placido Baca y Baca, collector Guadaloupe County	$864.26
Salome Martinez, treasurer and collector Guadaloupe County	357.04
R. Michaels, treasurer and collector Lincoln County	2,237.97
J. B. Martinez, treasurer and collector Mora County	227.58
W. G. Sargent, treasurer and collector Rio Arriba County	1,706.38
C. H. McHenry, treasurer and collector San Juan County	848.03
Fred Muller, treasurer and collector Santa Fe County	979.62
T. Labadie, collector San Miguel County	5,433.00
Margarito Romero, treasurer and collector San Miguel County	6,005.84
Will M. Robins, treasurer and collector Sierra County	471.73
Abran Abeytia, treasurer and collector Socorro County	858.90
Donaciano Cordova, treasurer and collector Taos County	408.89
Nepomuseno Martinez, treasurer and collector Union County	3,356.43
Solomon Luna, treasurer and collector Valencia County	134.00
E. H. Bergmann, superintendent New Mexico Penitentiary	1,250.31
A. M. Bergere, clerk first judicial district	169.95
H. P. Owen, clerk second judicial district	440.80
J. P. Mitchell, clerk third judicial district	212.00
Secundino Romero, clerk fourth judicial district	254.35
John E. Griffith, clerk fifth judicial district	203.85
Pullman Palace Car Company	71.05
George H. Wallace, secretary Territory, corporation fees	617.00
George H. Wallace, secretary Territory, unexpended balance (employees, 33d L. A)	80.00
Sale of Compiled Laws, 1897	68.00
Total	43,371.39

ABSTRACT OF RECEIPTS AND EXPENDITURES DURING THE QUARTER.

	Receipts.	Payments.
License fund		$23.76
Penitentiary current-expense fund	$1,250.31	11,969.52
Salary fund	1,280.95	2,051.24
Assessors' fund	1,662.89	2,695.39
Special-tax fund	3,806.30	12,854.25
Compilation fund (from sale of Compiled Laws)	68.00	102.00
Capitol contingent sinking fund	1,520.32	
Capitol rebuilding fund		9,642.48
Sheep sanitary fund	374.95	
Territorial purposes, forty-seventh fiscal year	553.04	
Territorial institutions, forty-seventh fiscal year	162.19	
Territorial purposes, forty-eighth fiscal year	561.01	352.71
Territorial institutions, forty-eighth fiscal year	163.71	
Territorial purposes, forty-ninth fiscal year	1,994.07	
Territorial institutions, forty-ninth fiscal year	453.19	
Territorial purposes, fiftieth fiscal year	22,857.65	5,988.70
Territorial institutions, fiftieth fiscal year	5,790.16	
Cattle indemnity fund	872.65	
Miscellaneous fund		8,449.34
Transportation of convicts fund		257.81
Supreme court fund		130.52
Territorial institutions fund, viz:		
University of New Mexico		1,750.00
Agricultural college		1,166.18
New Mexico Insane Asylum		4,247.71
New Mexico School of Mines		1,195.88
New Mexico Military Institute		2,100.00
Normal school, Silver City		1,166.18
Normal school, Las Vegas		1,166.18
Total	43,371.39	67,309.85

Note.—The following appropriations made by the thirty-third legislative assembly were paid from the following funds, and the amounts are included in the column of expenditures above, to wit:

For Territorial purposes, forty-eighth fiscal year, for printing report of superintendent of public instruction in Spanish, H. J. R. No. 4	$352.71
For Territorial purposes, fiftieth fiscal year, for printing bills, etc., in Spanish, C. B. No. 9	1,199.40
Expenses of committee visiting Territorial institutions, H. J. R. No. 13	125.50
Pay of interpreters, translators, etc., C. J. R. No. 11	3,000.00
Printing reports, etc., in Spanish, H. J. R. No. 4	1,413.80
Pay for muster in and out rolls, C. B. No. 100	250.00
Total	6,341.41

Quarterly report of the auditor of public accounts of the Territory of New Mexico, giving a detailed statement of the receipts and expenditures during the second quarter of the fiftieth fiscal year, ending September 5, 1899.

RECEIPTS.

J. L. Perea, treasurer and collector Bernalillo County	$16,242.86
J. A. Gilmore, treasurer and collector Chaves County	12,168.06
A. E. Burnam, treasurer and collector Colfax County	7,003.13
Jacob Schaublin, treasurer and collector Donna Ana County	9,819.99
J. F. Matheson, treasurer and collector Eddy County	6,870.72
John L. Burnside, treasurer and collector Grant County	20,132.71
Salome Martinez, treasurer and collector Guadaloupe County	1,850.09
R. Michaels, treasurer and collector Lincoln County	5,955.20
J. B. Martinez, treasurer and collector Mora County	2,582.17
W. G. Sargent, treasurer and collector Rio Arriba County	2,042.55
C. H. McHenry, treasurer and collector San Juan County	1,373.67
Fred Muller, treasurer and collector Santa Fe County	8,607.64
Margarito Romero, treasurer and collector San Miguel County	9,015.58
Wm. M. Robins, treasurer and collector Sierra County	1,684.88
Abran Abeytia, treasurer and collector Socorro County	8,582.91
Donaciano Cordova, treasurer and collector Taos County	1,376.39
Nepomuseno Martinez, treasurer and collector Union County	8,171.81
Solomon Luna, treasurer and collector Valencia County	3,543.63
J. La Rue, secretary cattle sanitary board, fees	2,000.00
Geo. H. Wallace, secretary Territory, corporation fees	1,878.00
W. H. Whiteman, adjutant-general, refund interest fund	8.65
A. M. Bergere, clerk first judicial district, fees	192.85
Harry P. Owen, clerk second judicial district, fees	456.60
J. P. Mitchell, clerk third judicial district, fees	128.80
Secundino Romero, clerk fourth judicial district, fees	522.35
J. E. Griffith, clerk fifth judicial district, fees	325.25
H. O. Bursum, superintendent New Mexico Penitentiary	1,664.13
E. H. Bergmann, ex-superintendent New Mexico Penitentiary	768.97
Sale of Compiled Laws, 1897	51.00
Sale of capitol rebuilding bonds, second series	60,792.50
Sale of certificates of indebtedness, Series A	39,475.00
Product of note First National Bank of Santa Fe, to pay interest	11,000.00
Total	246,378.09

ABSTRACT OF RECEIPTS AND EXPENDITURES DURING THE QUARTER.

	Receipts.	Payments.
Penitentiary current-expense fund	$2,433.10	$11,415.23
Salary fund	1,625.85	9,676.81
Assessors' fund	5,300.32	3,323.01
Special-tax fund	13,452.06	14,900.42
Compilation fund (from sale of Compiled Laws)	51.00	
Capitol contingent sinking fund	5,330.49	
Capitol rebuilding fund	60,792.50	12,315.63
Sheep sanitary fund	811.37	1,400.00
Cattle indemnity fund	5,698.28	
Miscellaneous fund		13,103.56
Supreme court fund		88.90
Territorial purposes, forty-seventh fiscal year	1,600.76	
Territorial institutions, forty-seventh fiscal year	468.70	
Territorial purposes, fiftieth fiscal year	76,349.87	
Territorial institutions, fiftieth fiscal year	21,980.14	
Interest on deposits fund		184.75
Deficiency fund		10.00
Territorial institutions fund, viz:		
University of New Mexico		2,731.13
Agricultural college		640.90
New Mexico Insane Asylum		6,793.64
New Mexico School of Mines		640.90
New Mexico Military Institute		1,900.00
Normal institute, Silver City		640.90
Normal school, Las Vegas		1,811.63
Due First National Bank of Santa Fe	11,000.00	
Paid by W. H. Whiteman, adjutant-general	8.65	
Certificates of indebtedness, sale	39,475.00	
Total	246,378.09	81,527.41

FINANCIAL STATEMENT OF BERNALILLO COUNTY.

Total bonded indebtedness of the county of Bernalillo up to and including June 30, 1899, amounts to $362,587.33, composed of the following items:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
Jan. 1, 1885	10-20	Funding bonds	6	$22,500.00
Jan. 1, 1886	10-30	Court-house building	7	78,000.00
July 1, 1889	10-30	Funding bonds	6	38,000.00
Do	10-30	Current expenses	6	40,000.00
Nov. 16, 1891	20-30	do	6	7,000.00
July 1, 1892	20-30	Bridge building	6	30,000.00
Jan. 1, 1893	15-30	Current expenses	5.9	17,000.00
July 1, 1895	10-30	Funding bonds	6	64,900.00
Aug. 2, 1897	10-20	do	6	50,100.00
		Total bonded indebtedness		347,500.00
Approved accounts unpaid to June 30, 1899				15,087.33
Total indebtedness to June 30, 1899				362,587.33
Total assessed value of real and personal property for the year 1898				5,719,261.00

FINANCIAL STATEMENT OF CHAVES COUNTY.

Total indebtedness of said county up to and including June 30, 1899, amounts to $50,000, composed of the following amounts, viz:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
Jan. 1, 1891	10-20	Court-house and jail	6	$30,000
Do	10-20	Lincoln County indebtedness	6	13,000
Do	15-30	Current expenses	6	7,000
		Total bonded debt		50,000
Total assessed valuation, real and personal, for year 1898				1,907,049

FINANCIAL STATEMENT OF COLFAX COUNTY.

Total indebtedness of said county up to and including June 30, 1899, amounts to $70,400, composed of the following items, viz:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
July 1, 1897	10-30	Current expenses	6	$7,000
July 1, 1895	20-30	Funding debt	6	28,900
Aug. 1, 1897	20-30	do	6	18,500
July 1, 1898	20-30	Improvement bonds	6	16,000
		Total bonded debt		70,400
Total assessed value of real and personal property for the year 1898				2,818,050

FINANCIAL STATEMENT OF DONNA ANA COUNTY.

Total indebtedness of said county up to and including June 30, 1899, amounts to $98,188.84, composed of the following amounts, viz:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
Jan. 1, 1885	10-20	Funding bonds	6	$9,400.00
July 1, 1889	10-20	do	6	32,000.00
July 1, 1895	10-20	do	6	23,100.00
Aug. 2, 1897	10-20	do	6	7,621.15
July 1, 1889	10-20	Current-expense bonds	6	15,000.00
July 1, 1891	10-20	do	6	7,000.00
		Total bonded debt		94,121.15
Judgments against the county				3,324.91
Approved accounts				589.92
Warrants outstanding				152.86
Total indebtedness				98,188.84
Void indebtedness under section 302, Complied Laws, 1897				10,584.85
Total assessed valuation, real and personal, for year 1898				2,435,753.00

FINANCIAL STATEMENT OF EDDY COUNTY.

Total indebtedness of said county up to and including June 30, 1899, amounts to $74,079.39.

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
			Per cent.	
Nov. 30, 1891	Feb. 6, 1921	County current expenses	6	$7,000.00
July 1, 1891	July 1, 1911	Court-house and jail	6	30,000.00
Jan. 1, 1892	Jan. 1, 1912	Lincoln County indebtedness	6	10,000.00
June 2, 1894	Jan. 6, 1924	Bridge bonds (county)	6	3,000.00
Aug. 2, 1897	July 1, 1917	Floating-indebtedness bonds under act thirty-second legislative assembly	6	24,079.39
		Total bonded debt		74,079.39
Total assessed valuation of real and personal property, less exemptions				1,724,282.00

FINANCIAL STATEMENT OF GRANT COUNTY.

Total indebtedness of said county up to and including June 30, 1899, amounting to $270,585.03, composed of the following amounts, viz:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
			Per cent.	
July 1, 1882	June 30, 1902	Funding indebtedness	6	$100.00
July 1, 1883	June 30, 1903	Railroad	7	57,000.00
July 1, 1885	June 30, 1905	Funding indebtedness	6	18,500.00
July 1, 1889	July 1, 1919	do	6	115,500.00
Do	do	Current expenses	6	27,000.00
		Total bonded debt		218,100.00
Approved accounts outstanding				15,824.51
Warrants outstanding				65.87
Judgments against county				18,016.65
Floating indebtedness				18,578.00
Total indebtedness				270,585.03
Total assessed valuation, real and personal, for year 1898				3,674,972.85

FINANCIAL STATEMENT OF GUADALOUPE COUNTY.

Total amount of indebtedness of said county up to and including June 30, 1899, amounts to $30,478.88, composed of the following items, viz:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
January 1, 1893	20-30	Court-house and jail	6	$25,000.00
August 2, 1897	10-20	Funding indebtedness of current expenses	6	2,822.16
		Total bonded indebtedness		27,822.16
Judgments against county				1,259.13
Approved accounts outstanding 1898				1,200.74
Approved accounts outstanding 1899				196.85
Total indebtedness				30,478.88
Total amount of assessed value of real and personal property for the year 1898				700,257.00

FINANCIAL STATEMENT OF LINCOLN COUNTY.

Total indebtedness of the county of Lincoln up to and including June 30, 1899, amounts to $57,715, composed of the following amounts, viz:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
October 3, 1892	20	Funding indebtedness	8	$3,000.00
January 1, 1883	20	do	8	500.00
June 2, 1883	20	do	8	300.00
April 7, 1885	30	do	6	2,600.00
July 1, 1889	15	do	6	24,366.00
July 1, 1894	20-30	Current expenses	6	7,000.00
August 2, 1897	20-30	Funding indebtedness	6	11,075.00
		Total bonded indebtedness		48,841.00
Approved accounts				4,379.32
Warrants outstanding				1,760.38
Account of George Sena				2,734.30
Total indebtedness				57,715.00
Total assessed valuation of real and personal property for the year 1898				1,608,226.00

FINANCIAL STATEMENT OF MORA COUNTY.

Total indebtedness of the county of Mora, up to and including June 30, 1899, amounts to $101,823.14, composed of the following items, viz:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
August 1, 1889	10-20	Court-house and jail	6	$70,000.00
August 2, 1897	10-20	Funding bonds	6	7,693.75
		Total bonded indebtedness		77,693.75
Approved accounts outstanding				1,314.49
Judgments against county unpaid				9,315.44
Interest due and unpaid				13,499.46
Total indebtedness to June 30, 1899				101,823.14
Total assessed value of real and personal property for the year 1898				1,016,120.00

M'KINLEY COUNTY.

McKinley County was formed from a portion of the county of Bernalillo, by an act of the thirty-third legislative assembly of the Territory of New Mexico, which went into effect February 23, 1899.

The only indebtedness against the county at the date of June 30, 1899, was its portion or pro rata of the indebtedness of that (Bernalillo) county, and it is impossible to determine what the pro rata of indebtedness will be until the assessment of this county has been completed.

This county of McKinley will be organized in 1900.

OTERO COUNTY.

Otero County was formed from portions of Donna Ana, Socorro, and Lincoln counties, by an act of the thirty-third legislative assembly of the Territory of New Mexico, which went into effect February 1, 1899.

The only indebtedness against the county at date of June 30, 1899, was its portion or pro rata of the indebtedness of those counties, and it is impossible to determine what the pro rata of indebtedness will be until the assessment of this county has been completed.

FINANCIAL STATEMENT OF RIO ARRIBA COUNTY.

Total indebtedness of the county of Rio Arriba, up to and including June 30, 1899, amounts to $51,902.60, composed of the following items, viz:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
July 5, 1882	20-30	Funding bonds, current expenses of court-house, jail, and bridges	6	$45,749.00
		Total bonded indebtedness		45,749.00
Approved accounts outstanding				5,015.80
Warrants outstanding				1,137.80
Total indebtedness to June 30, 1899				51,902.60
Total assessed value of real and personal property for the year 1898				1,053,179.00

FINANCIAL STATEMENT OF SAN JUAN COUNTY.

Total indebtedness of said county up to and including June 30, 1899, amounting to $21,290.16, composed of the following amounts, viz:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
			Per cent.	
December 30, 1889	Dec. 30, 1919	Current expense	6	$8,000.00
September 1, 1892	Sept. 1, 1922	Jail bonds	6	2,500.00
January 1, 1893	Jan. 1, 1923	Current expense	6	4,000.00
October 1, 1892	Oct. 1, 1922	Judgment	6	2,600.00
April 1, 1894	Apr. 1, 1923	Current expense	6	3,000.00
		Total bonded debt		20,100.00
Warrants outstanding				180.05
Floating indebtedness				1,010.11
Total indebtedness				21,290.16
Total assessed valuation, real and personal, for year 1898				873,258.00

FINANCIAL STATEMENT OF SAN MIGUEL COUNTY.

Total indebtedness of San Miguel County, up to and including June 30, 1899 amounts to $496,886, composed of the following items, viz:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
July 1, 1882	10	Refunding	8	$3,300
July 1, 1884	10	Court-house and jail	6	26,500
July 1, 1889	10-30	Funded debt, 1889	6	213,300
Jan. 1, 1892	30	Court-house and jail bonds, 1892	6	18,000
Nov. 1, 1895	20-30	Funded debt, 1895	5½	113,300
July 1, 1897	10-20	Funded debt, 1897	6	13,879
		Total bonded indebtedness		388,279
Approved accounts outstanding, including floating debt				10,000
Judgments against county				23,107
Past due interest unpaid				75,500
Total indebtedness				496,886
Total assessed value of real and personal property for the year 1898				4,440,364

FINANCIAL STATEMENT OF SANTA FE COUNTY.

Total indebtedness of the county of Santa Fe, up to and including June 30, 1899 amounts to $874,256.42, composed of the following items, viz:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years		*Per cent.*	
July 1, 1882	10-20	Current expense	8	$14,600.00
Jan. 1, 1885	20-30	do	6	27,000.00
Jan. 10, 1890	20-30	do	6	6,300.00
Sept. 29, 1891	20-30	Railroad bonds	5	262,000.00
Aug. 1, 1891	20-30	Current expense	5	19,500.00
Mar. 1, 1892	20-30	Railroad bonds	5	178,600.00
Do	20-30	Court-house and jail	5	64,500.00
Do	20-30	Current expense	5	90,900.00
Jan. 1, 1893	20-30	do	5	3,500.00
Aug. 1, 1897	10-20	do	6	13,139.00
		Total bonded indebtedness		680,039.00
Outstanding warrants				2,790.00
Accounts filed and approved and certificates issued				2,850.00
Accounts due and approved				421.00
Past due interest unpaid				188,156.42
Total indebtedness to June 30, 1899				874,256.42
Total assessed value of real and personal property for the year 1898				1,768,150.68

FINANCIAL STATEMENT OF SIERRA COUNTY.

Total indebtedness of the county of Sierra, up to and including June 30, 1899, amounts to $68,623, composed of the following items:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
July 1, 1889	15-30	Funding bonds	6	$56,800
Do	15-30	Current expense	6	10,000
		Total bonded indebtedness		66,800
Approved accounts unpaid to June 30, 1899				1,823
Total indebtedness to June 30, 1899				68,623
Total assessed value of real and personal property for the year 1898				1,344,495

FINANCIAL STATEMENT OF SOCORRO COUNTY.

Total indebtedness of the county of Socorro, up to and including June 30, 1899, amounts to $180,335.66, composed of the following items, viz:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
Jan. 1, 1884	10-20	Court-house and jail and funding debt	6	$103,500.00
July 1, 1889	10-20	Bridges and improvement	6	54,700.00
July 1, 1897	10-20	Funding bonds	6	20,700.00
		Total bonded indebtedness		178,900.00
Approved accounts outstanding				1,435.66
Total indebtedness to June 30, 1899				180,335.66
Total assessed value of real and personal property for the year 1898				4,611,482.00

FINANCIAL STATEMENT OF TAOS COUNTY.

Total indebtedness of the county of Taos, up to and including June 30, 1899, amounts to $44,900, composed of the following items:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest	Amount.
	Years.		*Per cent.*	
June 6, 1889	10-30	Funding bonds	6	$24,500
July 2, 1889	10-30	Current expense	6	3,000
July 1, 1892	15-30	do	6	3,500
Aug. 2, 1897	10-20	Funding bonds	6	10,400
		Total bonded indebtedness		41,400
Approved accounts outstanding to June 30, 1899				3,500
Total indebtedness to June 30, 1899				44,900
Total assessed value of real and personal property for the year 1898				611,816

FINANCIAL STATEMENT OF UNION COUNTY.

Total indebtedness of the county of Union, up to and including June 30, 1899, amounts to $36,631.67, composed of the following items:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
Nov. 1, 1894	10-20	Court-house and jail	6	$20,000.00
Jan. 15, 1895	15-30	Current expense	6	7,000.00
		Total bonded indebtedness		27,000.00
Judgments against county				3,068.67
Interest due and unpaid				1,563.00
Outstanding indebtedness				5,000.00
Total indebtedness to June 30, 1899				36,631.67
Total assessed value of real and personal property for the year 1898				1,631,500.00

FINANCIAL STATEMENT OF VALENCIA COUNTY.

Total indebtedness of the county of Valencia, up to and including June 30, 1899, amounts to $106,982, composed of the following items:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
Jan. 1, 1882	10-20	Floating debt	8	$18,982.00
Jan. 1, 1885	10-20	do	6	3,800.00
Jan. 1, 1889	10-20	do	6	18,700.00
Aug. 1, 1889	10-20	Current expense	6	30,000.00
Jan. 1, 1891	10-20	do	6	7,000.00
Jan. 1, 1895	10-20	Floating debt	6	20,000.00
Jan. 1, 1897	10-20	do	6	8,500.00
		Total bonded indebtedness		106,982.00
The above comprises the total indebtedness to June 30, 1899.				
Total assessed value of real and personal property for the year 1898				2,186,509.26

RECAPITULATION.

County.	Assessed value.	Indebtedness.
Bernalillo	$5,719,261.00	$362,587.33
Chaves	1,907,049.00	50,000.00
Colfax	2,818,050.00	70,400.00
Donna Ana	2,435,753.00	98,188.84
Eddy	1,724,282.00	74,079.39
Grant	3,674,972.85	270,585.03
Guadalupe	700,257.00	30,478.88
Lincoln	1,608,226.00	57,715.00
Mora	1,016,120.00	101,823.14
McKinley [1]		
Otero [1]		
Rio Arriba	1,053,179.00	51,902.60
San Juan	873,258.00	21,290.16
San Miguel	4,440,364.00	496,886.00
Santa Fe	1,768,150.68	874,256.42
Sierra	1,344,495.00	68,623.00
Socorro	4,611,482.00	180,335.66
Taos	611,816.00	44,900.00
Union	1,631,500.00	36,631.67
Valencia	2,186,509.26	106,982.00
Total	40,124,724.79	2,997,665.12

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[1] McKinley and Otero counties were created by the last legislature and are included in the counties from which they were formed in the assessment and debt of 1898 and until June 30, 1899.

BANKS.

The statements of the different banks throughout the Territory of New Mexico show the following business for the fiscal year ending June 30, 1899:

First National Bank of Albuquerque	$2,080,450.04
First National Bank of Las Vegas	684,931.49
First National Bank of Santa Fe	632,731.79
First National Bank of Raton	243,543.73
San Miguel National Bank, Las Vegas	661,210.31
Las Vegas Savings Bank, Las Vegas	104,340.59
Silver City National Bank, Silver City	314,173.31
Bank of Commerce, Albuquerque	561,425.55
Sierra County Bank of Hillsboro	108,353.65
Bank of Roswell, Roswell	305,789.87
Bank of Deming, Deming	162,028.33
Exchange Bank of White Oaks	97,802.14
George D. Bowman & Sons, Las Cruces	63,837.93
Andrew Morton & Co., Springer	56,149.60
Taos County Bank, Taos	94,587.28

INTERNAL-REVENUE SERVICE, DISTRICT OF NEW MEXICO,
Santa Fe, N. Mex., July 20, 1899.

DEAR SIR: In response to your letter of the 13th instant, I have the honor to submit herewith a statement of the collections for the Territory of New Mexico, for the fiscal year ended June 30, 1899, from the various sources enumerated below, viz:

Assessed taxes, fines, penalties, and interest	$7,201.42
Beer stamps	7,352.22
Spirit stamps	1,121.34
Cigar and cigarette stamps	1,305.08
Tobacco stamps	89.00
Playing-card stamps	1.72
Special-tax stamps	20,978.94
Adhesive stamps	28,882.28
Total	66,932.00

Very respectfully,

A. L. MORRISON,
Collector Internal Revenue.

Hon. M. A. OTERO,
Santa Fe. N. Mex.

DISTRICT COURTS AND SOLICITOR-GENERAL,
LAS VEGAS, N. MEX., *August 31, 1899.*

SIR: I beg to acknowledge receipt of your letter of recent date, in which you ask me to report at some length on the condition of the counties comprising the fourth judicial district of this Territory, over the courts of which I have the honor to preside, in order that you may insert the same in the annual report which you make to the honorable Secretary of the Interior.

I regret that I have not the time to make as full a report as I would like to do as to the physical condition of the several counties, and their capability for development, but it would in any event hardly be necessary, as the compilations published in your last report set them out quite fully. I will, however, briefly refer to some matters connected with the judiciary of the Territory, confining myself more particularly to this district, and may then touch very slightly on some of the changes which have occurred in the counties comprising my district, during the past year.

The courts of this Territory are different from any in the States, inasmuch as they have jurisdiction over both Federal and Territorial cases. The entire Territory is divided into five judicial districts, the judge for each district being appointed by the President and confirmed by the Senate. In each of these districts two terms of the United States court are held annually for the trial of Federal cases, and in each county of the five districts two terms of the Territorial district court, for the trial of causes arising under the laws of the Territory, are provided by law. All of these terms are presided over by the several district judges.

The supreme court of the Territory consists of the five district judges, who meet annually at Santa Fe for the purpose of hearing such matters as are properly brought before them. From this court appeals lie to the United States circuit court of appeals, and to the Supreme Court of the United States, which is the court of last resort.

From the above it will be seen that the number of terms of court which a judge holds annually depends on the number of counties which are in his district, and the length of each term depends on the business to be done and the funds on hand in the county treasury to pay the court expenses.

The fourth judicial district consists of five counties, and the average terms of court as follows:

	Weeks.
Supreme court, about	7
United States court, about	4
San Miguel County, about	12
Colfax County, about	6
Guadalupe County, about	2
Mora County, about	4
Union County, about	3
Total weeks per year	38

In addition to this a large number of cases, which do not require the intervention of a jury, motions, orders, etc., are heard in chambers, out of court, so that the time of a judge in this Territory is fully occupied.

Our laws provide that each county shall levy a special tax for the carrying on of the Territorial courts, which tax, when collected, is paid into what is known as the court fund. As the amount collected in the several years varies, in the past the Territorial district courts have been held somewhat irregularly; but I believe that the finances of the several counties have so far improved that in the future these courts will be held at the regular terms—that is, twice each year in each county except in the county of Guadaloupe, where there is only money and business enough to warrant the holding of one term annually.

The county seats of each of the counties in the district, save Guadaloupe and Mora, are on the line of the railroad and are quite easily reached, although when holding a term of court in Clayton, the county seat of Union County, a railroad journey of 262 miles is necessary. To reach Puerto de Luna, the county seat of Guadaloupe County, requires an overland ride of some 80 miles, while to reach Mora, the county seat of Mora County, a 32-mile ride overland is necessary.

Acting as the supreme court, we have been kept much occupied. On our first assembling we found a very large docket confronting us for hearing—if I remember rightly, something over 60 cases. All of these have been heard, and decisions have been handed down in all of them but about a dozen opinions, and these will be handed down at a later day, so that when the supreme court convenes at its regular January term, 1900, there will be an entirely new docket to consider. I believe that I can say with safety that our course in insisting that all of the cases on the docket be heard meets with the general approbation of both the bar and the persons who are interested in the results.

It is perhaps unnecessary for me to say that the hearing of these cases imposed much arduous labor on us, but every member of the court cheerfully assumed the duties assigned to him.

It is needless for me to go into a detailed statement of the number of Territorial cases pending and disposed of in the district court of the several counties in my district, as the statement prepared by the efficient clerk of my court, Mr. Secundino Romero, which is published herewith, gives this information, and I refer you to it. Suffice it to say that crime is swiftly and surely punished in all of the counties in the district, and the knowledge that such is the case has had a deterrent effect on those contemplating wrongdoing. Anyone who has civil cases pending can get a speedy trial if he so desires. On the whole, I can say that the courts in my district are running in a very satisfactory manner, and so far as I know give general satisfaction to all law-abiding citizens. It shall be my aim so long as I have the honor to preside over the courts of the fourth judicial district of this

Territory to so conduct them that the several terms may be regularly held and justice meted out with an even hand.

During the past year but few crimes of a heinous nature have been committed. In the entire district there have been but two or three murders committed, which is a most excellent record for a country so extensive as this and so sparsely settled, especially when we consider that so many people are engaged in nomadic pursuits. The larger part of the indictments returned into court for serious offenses were for the larceny of cattle, horses, and sheep. I am glad to say that the example made of such of these defendants as have been tried has kept others from repeating their offenses. The speedy punishment of this class of crimes is particularly necessary in a country like this, where the stock-raising interests are so large.

Union County, in my district, has had two "train robberies" during the year both occurring within a mile or two of each other, near the town of Folsom, on what is now known as the Colorado Southern Railroad. It is claimed that the first of these robberies was made by three men, one of whom died of wounds inflicted during a pursuit, another is under arrest, and only one of the party is at large. The last robbery was made by one man, who was wounded and is now in the penitentiary awaiting trial. The breaking up of these bands of outlaws will, I think, put an end to such robberies for some time to come. The alleged robbers were not residents of this Territory, but came in from the outside.

During the year I held the first term of court at the new court-house at Raton, the county seat of Colfax County. The court-house is pleasantly arranged, well cared for, and is an ornament to the city. It is a real pleasure to preside over a court where the surroundings are so agreeable. Raton being centrally located according to the population of Colfax County, court can be carried on at much less expense than at any other point in the county.

The people who reside in my district were never so well off in a material way as at the present moment. There is more money in the Territory than ever before, and it loans at much lower rates of interest to those who are of known responsibility than ever before. The rise in cattle, wool, and sheep, in which so many of our people are interested, has placed a large amount of money in circulation, and every mercantile and banking business feels the good times which are upon us. That the tariff be not changed materially for years to come is the wish of nine-tenths of our people, and if such wish is realized, in a few years the people of this district will be loaning to the Eastern money centers. In fact, it is almost impossible to realize the changed condition of our people during the last three years.

Respectfully yours,

WILLIAM J. MILLS, *Chief Justice, etc.*

Hon. MIGUEL A. OTERO,
Governor of New Mexico, Santa Fe, N. Mex.

REPORT OF THE SOLICITOR-GENERAL.

I have the honor to herewith submit my report of the doings of this office since I took possession of the same on the 7th of March, 1898.

During that time I have given 30 written opinions to different Territorial officers, at their request, upon various subjects.

I have appeared for and defended 4 suits in mandamus against the auditor in the district courts of the Territory, 1 of which I appealed to the supreme court of the Territory, where it is now pending; and on behalf of the Territory I have instituted 2 suits in the district court for Santa Fe County against the county commissioners of San Miguel County, one for the purpose of recovering from them and their bondsmen $30,000 due to the Territory from taxes alleged to have been illegally abated by that board, and the other to recover the penalty of $100 provided by law and the expenses of a special messenger to receive the election returns of that county, which the board failed to forward as provided by law.

In the supreme court, at the last term, I prepared and filed briefs in 12 cases, 4 of them civil, to recover taxes, 2 of which were argued and submitted and 2 are pending.

Of the 8 criminal cases appealed by convicted defendants, 2 were for murder, 2 for rape, 2 for larceny of animals, 1 for arson, and 1 for perjury. Of these cases 2 were reversed, 1 was affirmed, 2 have been argued and submitted, and 3 are to be argued at the adjourned term of the supreme court.

NEW COMPILATION OF THE LAWS.

The compilation of the laws under the act of 1897 is generally very accurate and satisfactory, the only serious omission which I have observed being in section 1702, "Registration," where there is omitted the last portion of section 1215, Compiled Laws of 1884, in regard to the disposition of the registration lists, requiring two copies to be sent to the probate clerk, he to retain one and forward the other to the secretary of the Territory. This is a very important omission, and, while it is still the law, it should be made to appear in its proper place by inserting it at the end of section 1702.

In section 1654 the old sections are compiled exactly as they appear in the compilation of 1884, but it should be amended so as to be more explicit and conform to the evident intent of the legislature and the translation. This section is in regard to the election returns in districts comprising more than one county, by which the election returns are required to be made to "the county first appointed." A very slight amendment will be sufficient to make the section clear and explicit.

Section 1646, in regard to persons voting in another precinct than that of their residence, is repealed by section 1709, requiring a certificate of the board of registration that the party so applying is duly registered.

The school law in regard to the election of school directors, section 1532, should be amended so as to compel the old boards of directors to call the election as provided by law, and their failure so to do should be punished by removal from office and a heavy fine, to go to the school district. The directors have been taking advantage of the laxity of the law to keep themselves in office indefinitely by failing to call the election, to the great detriment of the school. Also, there should be adequate provision made for the canvassing of the votes at this election and giving proper certificates of election.

Section 1524, providing for the payment to the superintendent of schools of each county of $5 a day, should be repealed, as a salary is provided for that officer by section 1771.

Sections 2730 to 2737, inclusive, providing for the attachment of the body of a debtor, should be specifically repealed, as they have been held by the district courts to be repealed by implication. They are obsolete and should not appear in our laws, as they are sometimes sought to be invoked and enforced in justice of the peace courts.

Section 36, in regard to "acequias," was decided by the supreme court on the 24th of August last, in the case of Levy *v.* Ortega, to have been repealed, and the legislature should formally repeal the section in conformity with that opinion.

Sections 1072 to 1078, relative to the crime of murder, are doubtless repealed by implication by the crimes act of 1891. Under these sections the crime of murder was divided into five degrees, while the act of 1891 limited them to three. These are the sections referred to by the solicitor-general in passing upon the correctness of the compilation, and should be repealed by the legislature in terms.

In regard to appeals to the supreme court in criminal cases there is a manifest conflict between sections 3409 and 3420, Compiled Laws of 1897, which works a great injustice. These sections should be reconciled by an act which might either repeal the latter part of section 3420 or by an entirely new section on the subject.

The matter of costs on appeal is something that should be fixed by definite law. At present, under sections 3413, 3414, Compiled Laws of 1897, any person convicted of any crime may take an appeal to the supreme court with practically no expense to himself, but involving considerable expense to the Territory and unnecessary labor on the prosecuting officer, besides being an injustice to the clerks of the court who receive no compensation for their work in preparing transcript. Such appeals, I know, in many instances to be without merit and taken simply for the purpose of delay.

Section 2570, providing that the solicitor-general need not reside at the capital, should be repealed. He, as well as other Territorial officers, should at all times be ready to attend to the public business by having their residence at the capital of the Territory.

The statutes providing for district attorneys bringing tax suits, found at sections 649 and 2576–2579, should be reconciled and harmonized.

Sections 4007 and 4078 should be changed so as to provide for printing to be given to the lowest responsible bidder.

Section 1803, being chapter 35, Laws of 1895, does not in terms provide for the sheriff's fees as provided for in sections 1256–1257, Compiled Laws of 1884, which were omitted from the compilation of 1897, and these old sections should either be specifically added or excluded from such new sections.

There should be a provision that a summons in garnishment or attachment should be answered within twenty days from the service, to make the procedure uniform and expeditious, instead of having such answer returnable to a term of court.

Suits against Territorial officers should be brought in the court of the county wherein their offices are located; this would be no inconvenience to the plaintiff, while the public business might suffer and great inconvenience arise by requiring Territorial officers to go to distant parts of the Territory to defend suits against them.

The law should provide for a supersedeas bond on appeal to the supreme court in mandamus cases as in other civil actions.

Section 2935, providing the defendant shall answer within ten days after service in certain cases, is in conflict with section 19, subdivision 2 of the Code, which gives twenty days in which to answer, and should be amended so as to read "twenty days" instead of ten.

Section 928 should have inserted at the beginning of the section the words "the probate court shall have exclusive original jurisdiction in all of the following cases, to wit," as contained in the original act, section 48, chapter 90, page 221, Laws of 1889, which were omitted by the compilers through mistake. These words are very important, in fact indispensable for the proper construction of said section.

The Code of Civil Procedure, in my opinion, has given general satisfaction to the bench, bar, and litigants, and while some amendments may be necessary the Territory is to be congratulated upon the results obtained by its adoption.

Very respectfully,

EDWARD L. BARTLETT,
Solicitor-General.

SIR: In compliance with your request for information regarding the business of the supreme court of the Territory of New Mexico, I have the honor to respectfully submit the folling statement:

SUPREME COURT.

At the beginning of the present fiscal year, there were the following number of cases undisposed of and pending in the supreme court, to wit:

Number of cases brought up by appeal	28
Number of cases brought up by writ of error	39
Total number of cases pending	67

Which were brought up from the following districts:

From the first judicial district court—	
By appeal	0
By writ of error	8
From the second judicial district court—	
By appeal	13
By writ of error	13
From the third judicial district court—	
By appeal	1
By writ of error	5
From the fourth judicial district court—	
By appeal	4
By writ of error	2
From the fifth judicial district court—	
By appeal	11
By writ of error	10
Total number of cases	67

Of which the following is the standing and disposition:

Finally determined by affirmance of judgment	24
Finally determined by dismissal	3
Finally determined by reversal of judgment with instructions to grant a new trial in lower court	9
Finally determined by reversal of judgment with instructions to lower court to dismiss	3
Under advisement by the court	22
Continued to next regular term	3
To be heard at adjourned session, August 23, 1899	3
Total number of cases	67

During the year there have been filed in my office sixteen applications for admission to the supreme court bar, the status of which is as follows:

Number of applicants admitted by supreme court	13
Number of applicants awaiting examination by committee	3
Total	16

Of the cases which have been finally determined by affirmance of judgment, four have been taken to the Supreme Court of the United States by writ of error, one has been taken by writ of error to the United States circuit court of appeals, and one has been granted a new hearing in this court, and will be heard at the adjourned session of August 28, 1899, and two are pending upon the motion for a rehearing in this court.

During the year there have been brought into this court the following number of new cases, all of which are returnable to the next regular term of the court:

Number of cases brought up by appeal	2
Number of cases brought up by writ of error	8
Total number of new cases	10

Brought into the court as follows:

From the first judicial district court—	
By appeal	1
By writ of error	1
From the second judicial district court—	
By writ of error	4
From the fifth judicial district court—	
By writ of error	4
Total number of new cases	10

At the time that I took charge of the affairs of this office, nearly one year ago, the files in this office were in a very disorderly and lamentable condition, but after two months and a half of constant and hard work I have succeeded in arranging the files in a proper and accessible manner. Every case which had been finally determined, from No. 1 to the present time, has been separately indexed, each index stating the papers contained in the particular case, and wrapped up in strong manila paper, and the number of the case marked on the outside of the bundle. In a good many instances, owing to the careless manner in which the files had been kept, papers of great importance are missing, in several cases no papers at all having been found by me.

The supreme court has not held a regular session during the year 1899, owing to the fact that the last legislative assembly changed the time of its meeting, and the court entered an order fixing the times of the United States courts in accordance and conformity with the act of the legislative assembly, and the following is a correct calendar of the times and places of the meeting of the United States and Territorial courts:

The supreme court meets in Santa Fe on the first Wednesday after the first Monday in January, 1900, and annually thereafter.

TERMS OF THE DISTRICT COURTS.

First district.—In Santa Fe, United States court, first Mondays in March and September. Santa Fe County, first Mondays in March and September. San Juan County, third Mondays in April and October. Rio Arriba County, second Mondays in May and November. Taos County, first Mondays in June and December.

Second district.—In Albuquerque, United States court, third Mondays in March and September. Bernalillo County, third Mondays in March and September. Valencia County, first Mondays in March and September.

Third district.—In Lascruces, United States court, first Mondays in April and October. Donna Ana County, first Mondays in April and October. Grant County, first Mondays in March and September. Otero County, first Mondays in May and November. Sierra County, fourth Mondays in May and November.

Fourth district.—In Las Vegas, United States court, second Mondays in May and November. San Miguel County, second Mondays in May and November. Union County, first Mondays in March and September. Colfax County, third Mondays in March and September. Mora County, fourth Mondays in June and December. Guadaloupe County, fourth Mondays in June and December.

Fifth district.—In Socorro, United States court, last Monday in April and second Monday in November. Socorro County, fourth Monday in April and second Monday in November. Eddy County, fourth Monday in February and second Monday in September. Lincoln County, first Monday in April and third Monday in October. Chaves County, second Monday in March and fourth Monday in September.

The next regular session of the supreme court will begin on the 3d day of January, 1900. The supreme court has fixed the first day of the term for the examination of all the applicants for admission to the bar, and has a standing committee for that purpose. Rules of the supreme and district courts, in pamphlet form, a supply of which is always on hand in this office, will be furnished to anyone who applies for the same, free of charge.

THE BAR ASSOCIATION.

The New Mexico Bar Association is a corporation organized under the laws of the Territory of New Mexico, its main object being the cultivation of the science of jurisprudence: to promote reform in the law; to elevate the standard of integrity, honesty, and courtesy in the legal profession; to facilitate the administration of justice; to encourage a thorough and liberal education, and to cherish a spirit of brotherhood among the members thereof.

The officers of the organization are a president, five vice-presidents, a secretary, and a treasurer, together with the usual number of standing committees. Its present membership is about 125, 15 of whom are nonresidents.

The following have been its presidents since the time of its organization: William A. Vincent, Las Vegas, 1886; Neil B. Field, Albuquerque, 1887; S. B. Newcomb, Las Cruces, 1888; Frank Springer, Las Vegas, 1889; F. W. Clancy, Santa Fe, 1890; William C. Hazledine, Albuquerque, 1891; A. B. Elliot, Hillsboro, 1892; A. A. Jones, Las Vegas, 1893; J. G. Fitch, Socorro, 1894; T. B. Catron, Santa Fe, 1895; Neil B. Field, Albuquerque, 1896: A. B. Fall, Las Cruces, 1897; R. E. Twitchell, Las Vegas, 1898.

The following are its present officers and standing committees: President, R. E. Twitchell, Las Vegas; vice-president, first district, E. A. Fiske, Santa Fe; vice-president, second district, E. W. Dobson, Albuquerque; vice-president, third district, T. F. Conway, Silver City; vice-president, fourth district, W. C. Wrigley, Raton; vice-president, fifth district, A. A. Freeman, Eddy; secretary, E. L. Bartlett, Santa Fe; treasurer, G. W. Knaebel. Santa Fe.

Delegates to American Bar Association: Frank Springer, N. C. Collier, W. B. Childers.

Delegates to National Bar Association: T. B. Catron, E. W, Dobson, N. B. Field.

Executive committee: The president, the secretary, ex officio, F. W. Clancy, W. H. Pope, A. C. Campbell.

Legal education: H. L. Warren, W. A. Hawkins, R. C. Gortner, L. C. Fort, R. W. D. Bryan, S. B. Gillett.

Grievances: T. B. Catron, B. M. Read, J. Leahy, G. A. Richardson, W. B. Childers.

Admission: O. N. Marron, C. A. Spiess, A. B. Elliott, S. Alexander, B. F. Adams.

Revision of constitution and by-laws: A. A. Jones, J. G. Fitch, T. A. Finical, S. Alexander, E. L. Medler.

Legal biography: S. B. Newcomb, E. V. Chavez, A. V. McMillen, A. L. Morrison, C. W. Johnston.

History of bench and bar: R. E. Twitchell, William Breeden, L. B. Prince.

Law reform: B. S. Rodey, H. B. Ferguson, H. L. Warren, N. B. Laughlin, E. F. Conway.

The following quotation from the last report of the secretary of the association, I believe, will give better information as to the doings and status of the association.

"At this time I deem it not amiss to call the attention of the members, as well as that of other associations to whom these minutes shall come, to the fact, which is little known, that we are among the very first of the State or Territorial bar associations to be organized west of the Mississippi River. Of the thirty-eight State and Territorial bar associations in the United States, nineteen were organized before ours and seventeen after. I have been unable to get the date of the organization of the associations in Kentucky and Mississippi. although I have written to the secretaries for the same. Our work, while done quietly, has been valuable and far-reaching, not only for the profession, but for the advantage of the people in the Territory generally. The money which we have contributed has been expended for necessary printing; the purchase of rare and valuable books, and flowers for our dead, amounting to about $2,500, and we have on hand about $400. There has only been $250 expended for services and expenses of officers since the organization of the association, and $200 expended for banquets. A brief résumé of the work of the association may be interesting.

"It was organized at Santa Fe, January 19, 1886. The constitution and by-laws adopted were based upon those of Illinois and Missouri. They have been amended at various sessions since to meet changed conditions.

"Hon. William A. Vincent, who shortly afterwards was chief justice of the Territory, was the first president. He has since removed to Chicago, where he is now practicing his profession.

"At the session of 1887, a strong memorial was addressed to Congress, urging the passage of an act for the settlement of land-grant titles in the Territory; also a memorial to the Territorial legislature, recommending the passage of various laws to conform to modern usage and practice. Several of these laws recommended by the association were enacted by the legislature. The report was prepared by John H. Knaebel, and is a most instructive and interesting document. At the session of 1888, the president, Mr. Field, called the attention of the association to the gross abuses practiced by district attorneys and clerks of the court in the matter of their fees, and the enormous expense entailed on the Territory thereby; upon which the association took such prompt action that the flagrant abuses complained of were promptly corrected at the following session of the legislature. At this session delegates were first elected to the American Bar Association, and we have continued to elect delegates ever since. At the session of 1889, this association became a member of the National Bar Association and elected delegates thereto. It prepared and recommended for passage a number of important bills, all of which were enacted into laws by the legislature, among them the act correcting the 'omissions, inconsistencies, and contradictions' in the Compiled Laws of 1884. The act relating to probate law, administration, and wills, the assignment law, the act prescribing form of acknowledgment to deeds, as recommended by the National Bar Association, and a number of others of less importance. The committee on the history of bench and bar was created at this session, the reports of which have been an unique and interesting feature of the meetings since. At the session of 1890, the then president, Mr. Springer, in his address, again called the attention of the association to the necessity of Congressional action in the settlement of private land grants. The association took hold of this matter with such vigor that its memorial to Congress on the subject was acted upon by that body in the following year, by creating a Court of Private Land Claims, embodying in the act most of the recommendations of the association. It also memorialized Congress for the creation of the Fifth judicial district, which was shortly after done. At the session of 1891, in his address to the association, the president, Mr. Clancy, used the following language:

"'Before concluding, I must congratulate you upon what the association has succeeded in accomplishing during its brief existence. It is but five years since our first organization and yet as direct results of our exertions, abuses of their official powers by public prosecutors have been suppressed, robbery of the public treasury by our courts' officials has been stopped, beneficial legislation has been secured on the subject of wills and descents, negotiable paper, acknowledgments of deeds, justices of the peace and constables, assignments, pleading, evidence, and others, including the passage of acts to remedy numerous inconsistencies and contradictions in our statutes.

"'At this session bills were prepared and recommended which were enacted into laws by the legislature providing for the summer session of the supreme court, redistricting the Territory for judicial purposes and fixing the time for holding courts in the several counties, relative to judgment liens, the law fixing return days, and relative to appeals and writ of error, and the crime law defining murder and other felonies and taking away the powers of juries to fix punishments.'

"In 1892, the association prepared amendments to the act creating the Court of Private Land Claims and an elaborate argument in favor of them, and appointed a committee to present and urge the same upon Congress. It also prepared, printed, and paid for the rules of the Court of Private Land Claims, these rules being adopted by it and now in force.

"At the session of 1893, the association was incorporated under the Territorial laws.

"A complete set of rules for the supreme court and district courts in law and equity was carefully prepared and submitted to the supreme court then in session, which adopted and promulgated the same. The association paid the expense of proper indexing of the same and assumed to pay for the printing of it should it be necessary, but it afterwards discovered that this expense could be and was paid by the Territory.

"At the session of 1894, the matter of a code for the Territory was thoroughly discussed, and the first steps were taken in the direction of a code by appointing a committee of five to prepare and present to the next meeting a code of civil practice.

"At the session of 1895 this committee reported a proposed code, which was discussed for several days and nights, section by section, amended, changed, and finally adopted by a vote of 31 ayes and 15 noes, and recommended to the legislature, then in session, for passage. This bill passed the council at that session, but failed in the house.

"At the session of 1896, the matter of a revision of the laws, which had not been compiled since 1884, occupied the attention of the association, a special committee on revision consisting of ten members, being the five members of the committee on law reform and five other members, one from each judicial district, was appointed for the purpose of preparing a complete revision of the existing laws, and performed a great deal of work in that direction. At the present session of 1897 it was reported that the code, which had failed at the previous session of the legislature, had been passed as recommended by the association, and went into effect on the 1st day of August of this year. The legislature also passed a law providing for the recompilation of the laws of the Territory, appointing a commission for that purpose, so that the committee on revision decided that it had no more work to perform and its labors were not continued.

"By the request of the supreme court, the association prepared a new set of rules for the supreme and district courts, to conform with the practice under the new code, and the association embodied in them a new rule for the admission of applicants to practice law, based upon the laws of Illinois and Ohio on that subject, and being similar to the bill prepared by the association at its session of 1893. These rules were adopted and promulgated by the courts as recommended by the association on the 1st day of September, 1897.

"It is a noteworthy fact that none of the laws recommended by the association have been repealed or altered by the legislature, and that all of them have stood the test of investigation by the courts.

"Such is a brief summary of the actual results accomplished by the association, while the amount of work involved to bring them about has been enormous, and I believe that we may congratulate ourselves upon our accomplishments as compared with that of any other similar association in the United States. It will be seen from the above that there has not been a single meeting without earnest work for the public good and tangible results accomplished."

The annual meeting of the association occurs at the time of the regular session of the supreme court of the Territory, and its next meeting will be held in January. The supreme court at its next regular session will meet on the 3d of January, 1900, and no doubt the session will be held in its beautiful and commodious rooms in the new capitol building, which is now nearing completion.

Trusting that this information in regard to the supreme court of the Territory and the New Mexico Bar Association will be satisfactory, and awaiting your further commands, I remain,

Yours, most respectfully,

José D. Sena,
Clerk of the Supreme Court.

Hon. Miguel A. Otero,
Governor of New Mexico, Santa Fe, N. Mex.

Report of business transacted in the first judicial district court of the Territory of New Mexico from July 1, 1898, to June 30, 1899.

UNITED STATES.

CIVIL.

Pending June 30, 1898	8
Disposed of by dismissal and judgment	4
Pending June 30, 1899	4

CRIMINAL.

Pending June 30, 1898	14
New causes	7
Disposed of by dismissal	3
Disposed of by trial	10
Pending June 30, 1899	8

TERRITORIAL.

TAOS COUNTY.

Pending June 30, 1898	22
New causes instituted	24
Disposed of by dismissal	8
Disposed of by trial	13
Pending June 30, 1899	30

CRIMINAL.

Pending June 30; 1898	21
Pending June 30, 1899	21

SAN JUAN COUNTY.

CIVIL.

Pending June 30, 1898	15
New causes instituted	27
Disposed of by dismissal	5
Disposed of by trial and judgment	21
Pending June 30. 1899	16

CRIMINAL.

Pending June 30, 1898	6
New causes instituted	6
Diposed of by trial	1
Pending June 30, 1899	11

RIO ARRIBA COUNTY.

CIVIL.

Pending June 30, 1898	28
New causes instituted	3
Disposed of by dismissal	1
Disposed of by trial	1
Pending June 30, 1899	29

CRIMINAL.

Pending June 30, 1898	19
New causes instituted	
Disposed of by dismissal or trial	
Pending June 30, 1899	19

SANTA FE COUNTY.

CIVIL.

Pending June 30, 1898	189
New causes instituted	100
Disposed of by dismissal	77
Disposed of by trial and judgment	55
Pending June 30, 1899	157

CRIMINAL.

Pending June 30, 1898	38
New causes instituted	40
Disposed of by dismissal	38
Disposed of by trial	13
Pending June 30, 1899	27

RECAPITULATION.

CIVIL.

Causes pending June 30, 1898:	
United States	8
Taos County	22
San Juan County	15
Rio Arriba County	28
Santa Fe County	189
Total	262

Causes filed since June 30, 1898:	
United States	
Taos County	24
San Juan County	27
Rio Arriba County	3
Santa Fe County	100
Total	154

Causes tried and dismissed:	
United States	4
Taos County	16
San Juan County	26
Rio Arriba County	2
Santa Fe County	132
Total	180

Causes pending June 30, 1899:	
United States	4
Taos County	30
San Juan County	16
Rio Arriba County	29
Santa Fe County	157
Total	236

CRIMINAL.

Causes pending June 30, 1898:	
United States	14
Taos County	21
San Juan County	6
Rio Arriba County	19
Santa Fe County	38
Total	98

Causes filed since June 30, 1898:	
United States	7
San Juan County	6
Santa Fe County	40
Total	53

Causes tried and dismissed:	
United States	13
San Juan County	1
Santa Fe County	51
Total	65

Causes pending June 30, 1899:	
United States	8
Taos County	21
San Juan County	11
Rio Arriba County	19
Santa Fe County	27
Total	86

DISTRICT COURT, VALENCIA COUNTY.

Criminal cases pending on docket June 30, 1898		22
Criminal cases instituted during year ending June 30, 1899		7
Total		29
Disposed of:		
Convictions	1	
Dismissals	10	
		11
Balance cases pending June 30, 1899		18

Civil actions pending June 30, 1898		44
Civil actions filed during year ending June 30, 1899		28
Total		72
Disposed of:		
Tried	19	
Dismissed	11	
		30
Balance cases pending June 30, 1899		42

DISTRICT COURT, BERNALILLO COUNTY.

Criminal cases pending on docket June 30, 1898		72
Criminal cases instituted during year ending June 30, 1899		64
Total		136
Disposed of:		
Convictions	33	
Acquittals	5	
Dismissals	12	
		50
Balance cases pending June 30, 1899		86

Civil actions pending June 30, 1898		289
Civil actions filed during year ending June 30, 1899		251
Total		540
Disposed of:		
Tried	255	
Dismissed	71	
		326
Balance cases pending June 30, 1899		214

DISTRICT COURT, SECOND JUDICIAL DISTRICT.

Criminal cases pending June 30, 1898		4
Cases instituted during year ending June 30, 1899		6
Total		10
Disposed of:		
Convictions	4	
Dismissals	4	
		8
Balance cases pending June 30, 1899		2

Civil causes pending June 30, 1898:	
Chancery	2
Law	9
Total	11

Civil causes instituted during year ending June 30, 1899:		
Bankruptcy—		
Voluntary	9	
Involuntary	1	
Other actions	2	
		12
Total		23
Disposed of, tried, etc		7
Balance causes pending June 30, 1899		16

LAS CRUCES, N. MEX., *July 31, 1899.*

SIR: Responding to your favor of 1st instant, asking for a report of the transactions of this office for the fiscal year ending June 30, 1899, I have the honor of handing same to you herewith, sincerely trusting it may prove satisfactory.

I beg to remain, yours, most respectfully,

JAMES P. MITCHELL, *Clerk.*

Hon. MIGUEL A. OTERO,
Governor of New Mexico, Santa Fe, N. Mex.

Report of the transactions of the office of the third judicial district court for the fiscal year ending June 30, A. D. 1899.

United States civil cases pending July 1, 1898	None.
United States civil cases filed from July 1, 1898, to June 30, 1899	2
Balance of United States civil cases pending July 1, 1899	2
United States criminal cases pending July 1, 1898	10
United States criminal cases filed from July 1, 1898, to June 30, 1899	13
	23
Disposed of	16
Balance criminal cases pending July 1, 1899	7

DONNA ANA COUNTY.

Civil cases pending July 1, 1898	20
Civil cases filed from July 1, 1898, to June 30, 1899	64
	84
Disposed of	53
Balance civil cases pending July 1, 1899	31
Chancery cases pending July 1, 1898	10
New cases	None.
	10
Disposed of	4
Balance pending July 1, 1899	6
Criminal cases pending July 1, 1898	33
Criminal cases filed from July 1, 1898, to June 30, 1899	65
	98
Disposed of	64
Balance pending July 1, 1899	34

Criminal cases docketed during period July 30, 1898, to June 30, 1899, in Grant County, N. Mex., 113—4179 to 4291, inclusive.

Cases disposed of July 30, 1888, to June 30, 1899, including cases docketed prior to July 30, 1898, as follows:

Nolle—4175, 4179, 4182, 4183, 4184, 4185, 4186, 4187, 4188, 4190, 4192, 4237, 4240, 4250, 4265, 4270, 4279, 4280, 4286, 4287.

Acquittals—4191, 4254, 4275, 4277.

Change of venue—4196.

No bills—4195, 4197, 4198, 4258, 4261, 4262, 4263, 4264.

Convictions—these include penitentiary and jail sentence, fines for violating statutory laws, etc.: 4181, 4189, 4194, 4200, 4204, 4205, 4206, 4207, 4208, 4210, 4211, 4212, 4213, 4214, 4215, 4216, 4217, 4218, 4219, 4220, 4221, 4222, 4223, 4224, 4225, 4226, 4227, 4228, 4229, 4230, 4231, 4232, 4233, 4234, 4235, 4236, 4238, 4239, 4243, 4244, 4245, 4246, 4247, 4248, 4249, 4260, 4268, 4269, 4271, 4273, 4274, 4281, 4288.

Dropped with leave: 4156, 4174, 4178.

Dismissed at defendant's costs: 4201, 4241, 4272, 4283.

Dismissed at plaintiff's costs: 4176, 4177, 4290, 4291.

Total number of cases pending June 30, 1899: 32.

Civil and chancery cases docketed during period July 30, 1898, to June 30, 1899, Grant County, N. Mex., 77—3411 to 3487, inclusive.

Cases disposed of July 30, 1898, to June 30, 1899, including cases docketed prior to July 30, 1898, as follows:

Judgment for plaintiff—2745, 2894, 3466, 3454, 3465, 3361, 3410, 3421, 3426, 3417, 3470, 3480, 3151, 3429, 3437, 2871, 2992, 3362, 3419, 3423, 3428, 3424, 3446, 3410.

Judgment for defendant: 3431, 3442.

Final decree—2646, 2647, 3405, 3414, 3415, 3435, 3436, 3441, 3443, 3456.

Insanity committee appointed—3427, 3433.

Insanity, defendant discharged—3479.

Dismissed—2915, 2989, 3122, 3174, 3197, 3323, 3268, 3269, 3271, 3272, 3273, 3274.

Dissmissed at plaintiff's costs—3026, 3170, 3304, 3352, 3393, 3395, 3396, 3409, 3412, 3413, 3179, 3416, 3438, 3448, 3451, 3459, 3462, 3463.

Dismissed at defendant's costs—3312, 3477, 3478.

Dismissed, costs divided—3394.

Total number of cases pending June 30, 1899—chancery, 19; civil, 63.

SIERRA COUNTY.

Civil cases pending July 1, 1898	4
Civil cases filed from July 1, 1898, to June 30, 1899	11
	15
Disposed of	10
Balance pending July 1, 1899	5
Chancery cases pending July 1, 1898	5
New cases filed	None.
	5
Disposed of	3
Balance pending July 1, 1899	2
Criminal cases pending July 1, 1898	13
Criminal cases filed from July 1, 1898, to June 30, 1899	34
	47
Disposed of	8
Balance pending July 1, 1899	39

OTERO COUNTY.

Civil cases pending July 1, 1898	None.
Civil cases filed from July 1, 1898, to June 30, 1899	1
	1
Disposed of	None.
Balance pending July 1, 1899	1

Causes pending in the fourth judicial district on June 30, 1898, and new cases brought up to June 30, 1899, and disposition of same to June 30, 1899:

UNITED STATES.

CIVIL.

Pending June 30, 1898	2
Disposed of	1
Pending June 30, 1899	1

CRIMINAL.

Pending June 30, 1898	12
New cases	15
	27
Disposed of	19
Pending June 30, 1899	8

SAN MIGUEL COUNTY.

CIVIL.

Pending June 30, 1898	341
New cases	104
	445
Disposed of	79
Pending June 30, 1899	366

CRIMINAL.

Pending June 30, 1898	132
New cases	52
	184
Disposed of	87
Pending June 30, 1899	97

COLFAX COUNTY.

CIVIL.

Pending June 30, 1898	110
New cases	79
	189
Disposed of	48
Pending June 30, 1899	141

CRIMINAL.

Pending June 30, 1898	66
New cases	65
	131
Disposed of	47
Pending June 30, 1899	84

MORA COUNTY.

CIVIL.

Pending June 30, 1898	78
New cases	26
	104
Disposed of	21
Pending June 30, 1899	83

CRIMINAL.

Pending June 30, 1898	36
New cases	22
	58
Disposed of	30
Pending June 30, 1899	28

UNION COUNTY.

CIVIL.

Pending June 30, 1898	31
New cases	32
	63
Disposed of	26
Pending June 30, 1899	37

CRIMINAL.

Pending June 30, 1898	35
New cases	18
	53
Disposed of	27
Pending June 30, 1899	26

GUADALUPE COUNTY.

CIVIL.

Pending June 30, 1898	20
New cases	8
	28
Disposed of	6
Pending June 30, 1899	23

CRIMINAL.

Pending June 30, 1898	29
New cases	24
	53
Disposed of	21
Pending June 30, 1899	32

DEAR SIR: In compliance with your request of recent date, I beg to submit the following report of the business of this office for the year ending June 30, 1899:

TERRITORIAL CIVIL CASES.

Pending July 1, 1898	304
Filed during year	134
Total	438
Disposed of during year	195
Pending July 1, 1899	243

TERRITORIAL CRIMINAL CASES.

Pending July 1, 1898	97
Filed during year	71
Total	168
Disposed of during year	73
Pending July 1, 1899	95

UNITED STATES CIVIL CASES.

Pending July 1, 1898	4
Filed during year	7
Total	11
Disposed of during year	4
Pending July 1, 1899	7

UNITED STATES CRIMINAL CASES.

Pending July 1, 1898	6
Filed during year	2
Total	8
Disposed of during year	4
Pending July 1, 1899	4

Total cases pending July 1, 1898	411
Total cases filed during year	214
Grand total	625
Total cases disposed of during year	276
Total cases pending July 1, 1899	349

Respectfully,

J. E. GRIFFITH, *Clerk.*

Governor M. A. OTERO,
Santa Fe, N. Mex.

OFFICE OF THE ADJUTANT-GENERAL,
Santa Fe, N. Mex., July 1, 1899.

SIR: I have the honor to make my report of the condition of the National Guard of New Mexico at the close of the fiscal year ended June 30, 1899. Since the date of my last report the volunteers from New Mexico in the First United States Volunteer Cavalry and in the First Territorial United States Volunteer Infantry have been mustered out of the Volunteer Army and returned to their homes and quietly settled down to their former business pursuits, having served their country faithfully and won distinction and honor in every situation wherever placed, and received from their countrymen the grateful applause due to their valor.

The several organizations of the National Guard were much depleted by volunteer enlistments and some of them almost wholly disorganized. The work of reorganization has proceeded slowly. Many of the volunteers returned in poor health, with their systems filled with fevers contracted in Cuba, and have not felt like taking up National Guard work; but they are now manifesting more interest, and in a short time the Guard will be stronger and more effective in every way than before the war.

The official roster of the National Guard is as follows, viz:

Commander-in-chief, Miguel A. Otero; adjutant-general, William H. Whiteman; judge-advocate-general, Col. Ralph E. Twitchell; surgeon-general, Col. W. R. Tipton; aides-de-camp, Col. E. Godwin-Austen, Col. Harry Whigham, Col. E. W. Dobson, Col. Venceslado Jaramillo, Col. J. J. Frey, Col. J. E. Hurley, Maj. James G. Meadors, Maj. R. S. Goss.

First regiment of infantry: Colonel, John Borrodaile; lieutenant-colonel, Robert C. Rankin; surgeon, Maj. John F. Pearce; chaplain, Capt. Frederick J. Bennett; adjutant, Lieut. E. L. Medler: quartermaster, Lieut. Louis H. Chamberlin; sergeant-major, Boston E. Barnhill; quartermaster-sergeant. E. B. Booth; hospital steward, Clarence R. Helper.

First battalion: Major, vacant; assistant surgeon, Capt. H. M. Smith; chaplain, Capt. George Selby; adjutant, Lieut. B. F. Forsythe; quartermaster, Lieut. H. W. Kelly.

Company I: Captain, Hanford W. Taylor; first lieutenant, Herman C. Ilfeld; second lieutenant, Royal Prentice.

Second battalion: Major, vacant; adjutant, vacant; quartermaster, vacant; chaplain, Capt. Paul Silberton.

Company B: Disorganized.

Company G: Captain, Charles E. Burg; first lieutenant, James E. Elder; second lieutenant, Frank H. Strong.

Third battalion: Major, Eugene Van Patten; adjutant, Lieut. John Francis Findlay; quartermaster, Lieut. Phœbus Frudenthal; assistant surgeon, Capt. John McConnell; chaplain, Capt. Pedro Lasaign; sergeant-major, James Finley, quartermaster-sergeant, Henry Rynerson: ordnance sergeant. Mariel Valdez; color-sergeant, Juan Pedragon; hospital steward, Precillano Moreno.

Company A: Captain, Pedro Pedragon; first lieutenant. Cesario Pedragon; second lieutenant, Margarito Padilla.

Company B: Captain, Clinton B. Llewellyn; first lieutenant, Humboldt Casad; second lieutenant, Francisco Ribera.

Company D: Captain, Gregario Garcia: first lieutenant, Solomon C. Garcia; second lieutenant, vacant.

First squadron of cavalry: Major, Frederick Muller; surgeon, Maj. J. H. Sloan; adjutant, Sherard Coleman.

Troop A: Captain, Willard S. Hopewell; first lieutenant, J. B. McPherson; second lieutenant, Peter Crumrine.

Troops C, E, and F were disorganized by enlistments in the volunteer service. Troop E is being reorganized, and this popular organization will soon again take its proper place in the National Guard.

GATLING-GUN SQUAD.

The Gatling-gun squad was also disorganized by enlistment in the volunteer service and by the death of its commanding officer, First Lieut. F. W. Wientge, who died soon after his muster out of the Volunteer Army. The squad is now being reorganized, and within the next thirty days will again take its place in the National Guard.

SIGNAL CORPS.

The signal corps was disorganized by enlistments in the volunteer service, but it is hoped that in a short time reorganization will be perfected. This corps was commanded by Capt. W. C. Reid, who commanded Company F in the First Territorial United States Volunteers and is still in the National Guard service.

Pursuant to Special Orders, No. 4, dated Santa Fe, May 4, 1899, I left Santa Fe on the 4th day of May, and proceeded to Roswell, N. Mex., where I arrived on the 6th day of May, for the purpose of inspecting the New Mexico Military Institute, situated at that place, as directed by said order.

The inspection was made on the 8th day of May, 1899, and was as thorough in every respect as the same could be made. The notice to the superintendent of the intended inspection was received by him on the same day of my arrival at Roswell, so that there was but little time for preparation, and the conditions I found must necessarily have been the ordinary or normal condition of the institution. I inspected every room in the building, beginning with the dormitories. I found the bedsteads used were of cast iron, made for one person, each room being occupied by two students. I tumbled the bedding off and closely examined the mattresses and bedding, and found same fresh and clean and free of vermin. The floors and walls of the building throughout showed most cleanly care. Especial attention was given to an examination of the closets and the drainage therefrom. I found that a sewer pipe had been extended from the school building in a southeast direction to the river, affording perfect drainage from the closets and bathrooms. The plumbing seemed to be in perfect order, and I was unable to detect any bad odors in or about the closets or about the entire building.

I made a close examination of the groceries and provisions found on hand, and in every instance found the quality excellent and free of adulteration. I dined at the institution, and was served with the same kind of food that was given the students.

I found the food plentiful, well cooked, well seasoned, and, in fact, just such a dinner as may be found in the homes of people of middle life all over the country.

I witnessed an exhibition drill of the cadets, both in company and battalion formation, and was greatly pleased with their movements, which showed excellent instruction and discipline. I made a careful inspection of the cadets, of their arms, accoutrements, and uniforms, and found all in good condition. The arms furnished by the Territory are kept in a room in the basement set apart for that purpose, and appear to receive good care. I found 65 cadets present for duty and they appeared very proficient in the most recent system of tactics, and even the smallest cadets were familiar with modern tactics, the manual of arms, and the advanced bayonet exercises especially adapted to the Krag-Jörgenson rifle.

The college building is a handsome, substantial structure of brick, containing three stories and a basement, situated about one-half mile north of the business center of Roswell. The grounds extend over 40 acres of land overlooking the town. The situation is a beautiful and healthy one. The building contains 30 nice, airy, wholesome bedrooms, besides class rooms, office, kitchen, dining room, pantry, laundry, bathroom, and closets. The furnishings are comfortable and substantial. The recitation rooms are equipped with excellent twentieth century chair desks, which are said to be the most comfortable now in use. The building is heated by steam throughout from a large boiler in the basement, and there is a good supply of hot and cold water on every floor. The building is lighted by an excellent acetylene plant located about 100 feet away. The water supply is furnished from a tank of 10,000 gallons capacity, which is kept filled by means of a steam pump.

An examination of the course of study reveals the practical nature of the school. Four years of preparatory work are required, so that any student can enter who knows how to read, write, spell, and apply the fundamental rules of arithmetic. The preparatory course is followed by four years of collegiate work. The studies are such as are usually found in institutions of like character. The text-books in use in the preparatory course are those adopted for use in the Territorial public schools. In addition, there is taught the art of war, theoretical tactics, the manual of arms, and in fact everything usually taught in high-class military schools. Especial attention is paid to proper gymnastic exercises, and to reasonable and healthful athletic sports necessary to the physical, mental, and moral good of the students.

There are employed in the institute a superintendent, commandant of cadets, three instructors, matron, engineer, two cooks, janitor, and laundryman, at a cost of $6,000 per annum. The superintendent, Maj. James G. Meadors, is a graduate of Washington and Lee University of Virginia, and is a gentleman of fine culture, full of energy and zeal, devoted to the institution, ambitious to succeed, and, if properly supported, will make the institute so successful that every citizen of New Mexico may well be proud of it. The success already attained, the progress made in a single year, is highly creditable to the superintendent and to his able assistants, as well as to the people of Roswell, who take great and commendable pride in the institution. Mr. J. W. Willson, commandant, a graduate of the Virginia Military Institute, is an excellent man for the place. Of the other instructors, Mr. W. S. Fitzgerald, a graduate of Vanderbilt University, Mr. W. H. Whitten, graduate of Massachusetts Institute of Technology, Mr. L. Martini-Mancini, graduate of military school of Italy, ex-lieutenant of cavalry, I saw but little. They are all gentlemen of fine appearance and address, are represented to be excellent instructors, and give to the superintendent a hearty and loyal support. Mrs. Meadors, the matron, is an excellent, kind-hearted lady, who gives her whole time and care to the institution, takes great pride in the success of her husband's administration, and contributes very materially to such success.

The only commissioned officer in the institute is the superintendent, who holds a commission as major and aid-de-camp on the staff of the governor. I am of the opinion that proper rank in the superintendent, commandant, and instructors is absolutely essential to the maintenance of authority and respect in an institution of this character. The failure to make provision by law for giving rank to these officers is the result of an oversight of the legislative assembly, which will certainly be rectified when called to its attention; in view of which I respectfully recommend that temporary commissions be issued to the superintendent, commandant of cadets, and instructors, subject to the action of the legislative assembly at its next session, respectively, the superintendent to be colonel, the commandant to be major, and the instructors to be captains. I also regard it as indispensable that the next legislative assembly should make provision by law for commissions to be issued by the superintendent to captains and lieutenants of cadets, and for the appointment of noncommissioned officers from the cadets, their appointment and tenure to be regulated by law, or under such rules and regulations as the board of regents may prescribe.

The institute is provided with 80 Springfield rifles, caliber .45, and their accoutrements. These were furnished some months ago under your order, although the institute was not entitled to them under any law in existence. They are simply regarded as a loan until such time as the necessities of the National Guard may require their return. In my opinion provision should be made by law for properly equipping the institute with arms. The Springfield rifle is not at all suited to the younger cadets, being entirely too heavy. They should be supplied with a piece of modern artillery, sabers, and other arms necessary to teach and illustrate the art of war.

The eminent success of the institute in this, the first year of its existence, gives great encouragement for the future. This hope, however, may be frustrated by a failure to make prompt provision for its immediate necessities and for its expansion. Already the dormitories are filled to the limit of their capacity. There are 30 students in attendance who live or board in Roswell outside of the institute. I regard it as of the utmost importance and necessary to the success of the institute that all students should reside in the barracks. Those who live outside are liable to become lax in responding to the discipline of the school, while those who live inside will become envious of what seems to them the greater privileges enjoyed by those living outside. All students should be at all times under the eye and authority of the officers of the school. In matters of discipline there should be no divided authority between officers and parents.

There is an immediate demand for more commodious quarters. The institute should be provided at once with thirty more bedrooms, a room for a library, gymnasium, society halls, and storehouse. The laundry should be removed from the basement and placed in a separate building. I am aware that much of this can not be accomplished without legislative authority, but if there exists authority in the board of regents to provide for the more pressing needs of the institute by the construction of a temporary board structure, I should strongly recommend its exercise.

I desire to acknowledge my indebtedness to the officers of the institute and the people of Roswell for the many courtesies extended to me during my visit to the institute while in the performance of my duty.

I have the honor to be, etc., very respectfully, your obedient servant,

W. H. WHITEMAN,
Adjutant-General.

Hon. MIGUEL A. OTERO,
Governor of New Mexico.

NEW MEXICO'S WAR RECORD.

Since New Mexico became a part of the United States by the formation of her Territorial government, she has never failed to give a prompt response to the nation's call for soldiers. The loyalty and patriotism of the people of New Mexico can not be successfully questioned in view of her war record.

THE INDIAN WARS.

In the early history of the Territory the frequent Indian outbreaks were a source of great danger and distress in the West. New Mexico had her full share of suffering from this cause.

The large number of Indian depredation claims now in progress of adjudication by the Government affords some idea of the destruction of property by the Indians, but numerous graves, to be found in all parts of the Territory, testify to the loss of human lives and the valor of her native people. Happily those days of death and destruction are gone, and gone forever, by reason of the wise and humane policy of our Government toward the Indians.

In those early wars New Mexico rendered material assistance to the Government by organizing and equipping her militia and sending them into the field, where they rendered valuable services in subduing those savage tribes. Several thousands of the citizens of the Territory served as soldiers during those Indian wars, but I regret that, owing to primitive methods of keeping records in those early days, it is impossible for me to give an accurate list either of those engaged or of those who fell in those wars.

THE CIVIL WAR.

In the war between the States, commonly called the war of the rebellion, New Mexico responded promptly, and, according to the records, sent into the field in defense of the Union 6,561 soldiers, a large majority of whom were natives. Four thousand four hundred and thirty-two of these were enlisted for three years; they were engaged at Valverde, Glorietta Mountains, San Augustine, Peralta, and other battles, and 277 of them were killed in battle or died from wounds and other causes.

Many citizens of New Mexico entered the Union Army in other regiments and at other places, so that the records do not show the entire number of soldiers furnished by the Territory. I fully believe, from investigation, that New Mexico furnished about 9,500 soldiers to the Union Army during the civil war, or about 10 per cent of the entire population of the Territory, and none at all to the Confederate army, so far as I am able to ascertain.

THE SPANISH-AMERICAN WAR.

When war was declared between the United States and Spain, New Mexico was alive with enthusiasm. A telegram from the War Department authorizing the enlistment of a squadron, or four troops, of cavalry for the First United States Cavalry was received by me on the 25th day of April, 1898, and on the 6th day of May following the entire number was mustered in in accordance with the call, and they left Santa Fe on the following day, May 7, for the concentration camp at San Antonio, Tex. Later a call was received for 100 more men from New Mexico for the same regiment, and they were recruited, mustered in, and went to the front within ten days after the call was received.

For this regiment, now familiarly known as "Roosevelt's Rough Riders," New Mexico furnished about 500 officers and men. A large majority of these were young men, many of them being under the age of 21 years, and were recruited from all the walks of life. Among them were many college students, business men, clerks, ranchmen, cowboys, miners, etc. Most of them were accustomed to the saddle and capable of being ideal cavalry soldiers. These men, with their regiment, participated in the battle of Las Guasimas, and the daring charge and capture of San Juan Hill, near Santiago de Cuba, and their deeds of valor, now known to the nation and the civilized world, will in future form one of the brightest pages in our military history.

Still another call was received from the War Department for four companies of infantry to form a part, or one battalion, of a regiment called the Arizona-New Mexico-Oklahoma-Indian Territory United States Volunteer Infantry. Within a very few days after this call was received the 15 officers and 424 noncommissioned officers and privates left New Mexico for Whipple Barracks, Ariz. These four companies were recruited at four of the principal cities of the Territory—Santa Fe, Las Vegas, Albuquerque, and Las Cruces. Men from all parts of the Territory enlisted in them, and these soldiers were composed of robust and enthusiastic young men who are creditable alike to the Territory and the nation.

More men responded under each call than were required to fill our quota, and in their eagerness to serve their country it is estimated that 150 enlisted in the Regular Army and in regiments from the States, and some of whom are now with the army in the Philippine Islands. Thus, New Mexico has furnished 1,089 soldiers for the late war, and would and could have furnished many more had the opportunity been afforded us.

In the last call made by the President for ten additional regiments New Mexico furnished 121 men for service in the Philippines and stands ready to-day to furnish her proportion whenever needed or called upon by the President.

REPORT OF THE BUREAU OF IMMIGRATION.

SIR: During the year ending September 1, 1899, the bureau of immigration has been reorganized and its office removed from Albuquerque to Santa Fe.

The bureau as at present organized consists of L. Bradford Prince, Rio Arriba County, president; Frank Springer, San Miguel County, vice-president; F. Lowenthal, Bernalillo County, treasurer; W. A. Hawkins, Otero County; C. A. Campbell, Eddy County; and Max. Frost, Santa Fe County, secretary.

A commodious office has been rented at Santa Fe and neatly furnished, and the secretary has under the instructions of the bureau commenced to make a collection of mineral specimens from various parts of the Territory for the purpose of keeping a permanent exhibit in Santa Fe for the inspection and investigation of capitalists, mining promoters, and miners.

During the year ending September 1, 1899, 1,228 letters written by persons in the United States, Canada, and some coming from England and Germany, asking information concerning the climate, resources, development, and general condition of New Mexico, have been received and answered, and in each case pamphlets descriptive of New Mexico and its agricultural possibilities, of its mineral wealth, of its magnificent climate, its people, its schools, its higher educational institutions, and, in fact, everything connected with New Mexico have been sent to the writers of these letters. Numerous marked copies of New Mexico papers containing write-ups descriptive of our Territory have also been so mailed.

The supply of these pamphlets printed during the year 1898 is exhausted, and the bureau officers now have under work and in course of process new descriptive matter of the Territory, which when completed and printed will show the latest development and material condition of New Mexico up to the present writing.

In addition to the publications of the bureau during the past year the bureau ordered and paid for 1,000 extra copies of the report of the governor, Miguel A. Otero, made to the honorable Secretary of the Interior, for the year 1898. Every copy has been distributed, and there is now on hand over 500 requests for the report of the governor to be submitted to the Secretary of the Interior and to be printed for the current year. The reports of the governor are in great demand and have proven to be most valuable and comprehensive works of reference for the Territory.

Respectfully submitted.

MAX. FROST,
Secretary Bureau of Immigration, Territory of New Mexico.

Hon. M. A. OTERO,
Governor of New Mexico, Santa Fe, N. Mex.

NEW MEXICO PENITENTIARY,
Santa Fe, N. Mex., September 1, 1899.

SIR: In accordance with your request I have the honor to herewith submit report of the condition of the New Mexico Penitentiary as follows, to wit:

On May 1, 1899, there were confined in the penitentiary 192 convicts, of which number 37 are sentenced to life imprisonment, 4 for ninety-nine years, 2 for ninety years, and 1 for sixty years. Since May 1 to the present time, September 1, 1899, 19 prisoners have been received, 26 have been discharged, and 2 have escaped.

DISCIPLINE.

The discipline and behavior of the prisoners is and has been entirely satisfactory to the management. They are, as a rule, well behaved, obedient, and willing to perform such labor as may be assigned to them.

PUNISHMENT.

In the matter of punishment some changes have been made, the "dark cell" and stringing up by the hands having been abolished. The board of penitentiary commissioners at their July meeting adopted the "spanking" system which was inaugurated by Warden Hoyt, of the Colorado Penitentiary. This system has worked admirably, and has reduced the number of punishments at least 75 per cent. No convict has so far given cause for being punished the second time after having had a trial dose administered under the above system. It seems that it is not so much the physical punishment that has proven effective, but rather the humiliation, which seems to have a very decided moral effect upon the prisoners. The penitentiary physician is always present when punishments are administered. Authorities of considerable experience seem to share the view that this is the most humane and effective way to maintain discipline and exact compliance to the rules and regulations of the institution. For minor offenses other punishments are inflicted—taking away a ration of tobacco, the locking up in their cell in solitary confinement for a day, or perhaps a reprimand, as the nature of the case may require—the main object of the management being to maintain discipline and the strict compliance with the rules and regulations as set forth by the board of penitentiary commissioners, with as few punishments as possible, upon the theory that prisoners are sent here for the purpose of reform rather than persecution.

EMPLOYMENT.

All of the prisoners are kept continuously employed. Out of the aforesaid number an average of about 45 have been employed daily assisting in the construction of the Territorial capitol building; an average of which 5 have been employed as stonecutters, 2 to 4 as bricklayers, some as carpenters, others as laborers, and have given general satisfaction in the discharge of their respective duties. An average of about 12 have been employed during the last seventy days making ditches and laying sewer-pipe system for the city of Santa Fe, the same having been completed a few days ago. The above labor is required by the Territorial law to be furnished free of cost, and therefore no revenue has accrued therefrom to the credit of this institution. The balance of the prisoners are kept employed in different lines of occupation inside of the penitentiary grounds, as follows: In the bakery, 3; in the kitchen, 11; in the dining room of the superintendent, 1; in guards' dining room, 1; as bell boy, 1; as carpenters, 3; blacksmith shop, 5; laundry, 9; in the cell house, 4; barbers, 4; as druggist, 1; boiler house, 2; shoemakers, 4; tailors and repairers, 15; painters, 2; hostler, 1; teamsters and helpers, 5; power-house, 5; gardeners, 3; limekiln, 3; stonecutters, 14; stone breakers, 3; carrying water, 1; attending hogs and poultry, 2; greenhouse, 1; front yard, 1; scavengers, 1; partly insane, 1; incapacitated, 1; in the hospital, 5; gate man, 1; bricklayers, 6; balance as laborers in the yard; tin shop, 1.

IMPROVEMENTS.

The following is a partial list of improvements made and under construction during the past four months:

One line of steam pipe from power house to well, a distance of 300 feet, one 4-inch Knowles pump, 4-inch pipe from well to tank, cost of pump and material $500; also 675 feet of 3-inch pipe now being laid for the purpose of making connection with the water main and reservoir in order to insure a constant and sufficient water supply; ten new institution iron spring beds for hospital, new water-closet for the same, one operating table, ten hospital bedside tables, closets for sheets, bureau, etc., painting and renovating hospital, approximate value including 675 feet of pipe, $1,000; renovating and painting, etc., main office, superintendent's office, physician's office, superintendent's dining room, quarters for employees, total cost approximately, $200; tinner's outfit for tin shop $250; value of tinware, ironware, etc., manufactured by convict labor, cost of the same in the open market, exclusive of material as a basis, will amount to $500; one modern brick-kiln now under construction, when completed will burn 300,000 brick at a burning and have a cash value of $1,500; a complete brick outfit has been purchased from C. W. Raymond & Co., of Dayton, Ohio, upon which a cash payment of $1,995 has been made, total cost of which will amount, including freight, to $5,000. The above will include machinery for the manufacture of common, repress, and sidewalk brick. Work is also being carried on in the erection of an additional cell house.

COST OF MAINTENANCE.

The actual cost of feeding the prisoners during the past four months has been as follows: May, 14.9 cents per day per man; June, 15.18 cents per day per man; July, 14.25 cents per day per man; August, 14.12 cents per day per man.

Cost of beef, $7.28 per hundredweight; flour, $1.82 per hundredweight.

Financial condition September 1, 1899.

CONVICT'S EARNINGS.

Total amount received from March 1, 1899, to September 1, 1899	$3,064.13
Total disbursed during above period	1,063.69
Balance on hand	2,000.44

GENERAL EXPENSE FUND.

Total amount received by apportionments of appropriation for the fiftieth fiscal year, March 1, 1899, to September 1, 1899	$23,058.00
Disbursed during above period	14,038.39
Balance on hand	9,019.61

PENITENTIARY SALARY FUND.

Total amount received by apportionments of appropriation for the fiftieth fiscal year, March 1, 1899, to September 1, 1899	$6,835.03
Disbursed during the above period	4,776.62
Balance on hand	2,058.41

RECAPITULATION.

Total received from all sources	$32,957.16
Total disbursements	19,878.70
Total on hand	13,078.46

Respectfully submitted,

H. O. BURSUM, *Superintendent.*

Hon. MIGUEL A. OTERO,
Governor of New Mexico, Santa Fe, N. Mex.

LAS VEGAS, N. MEX., *September 1, 1899.*

SIR: We take pleasure in submitting herewith reports of the medical superintendent and steward of the asylum for the year ending June 30, 1899. You will notice that they cover all the points very thoroughly and leave little for us to add

The last legislature gave us a levy of 1 mill, which is an increase of one-quarter of a mill over the present levy.

We will not, however, begin to derive the benefit from this increase until next year, and in the meantime, with the increase in patients and the additional expense that naturally follows, we are running very close with regard to our finances. In our report to the legislature we requested them to give us a special levy for the improvement of the administration building, with the view of devoting more of it to the accommodation of the better class of patients, but our request was not granted, owing no doubt to the large number of demands made upon them and to their feeling the necessity of holding the expenditures down to the lowest possible notch. It is unfortunate, however, that we have not the funds to put this building in better condition, and our hope at this time is that the increased levy of next year will be large enough to enable us to make these improvements after taking care of the usual running expenses. We submit the reports herewith without further comments on our part.

Respectfully,

J. W. ZOLLARS,
MARCUS BRUNSWICK,
FRANK CROSSON,
BENIGNO ROMERO,
F. H. PIERCE,
Directors.

HON. MIGUEL A. OTERO,
Governor of New Mexico, Santa Fe, N. Mex.

LAS VEGAS, N. MEX., *July 1, 1899.*

SIRS: In compliance with your request I beg leave to make the following report for the year ending June 30, 1899:

The number of patients remaining in the asylum June 30, 1898, was 57, of which 33 were males and 24 females. During the year there have been 45 admissions, of which 27 were males and 18 females.

A total of 102 patients have been treated during the year. The average daily attendance for the year has been 77. The number of discharged has been 15, as follows:

Cured	2
Improved	4
Unimproved	1
Died	8
Total	15

The causes of death have been as follows:

Inanition	2
Chronic diarrhea	1
Cerebral hemorrhage	1
Ptomaine poisoning	1
Maniacal exhaustion	2
Epilepsy	1
Total	8

The total number of patients remaining in the institution June 30, 1899, are 91, of which 52 are males and 39 are females, classified as follows:

Acute mania	2
Chronic mania	24
Dementia	57
Epileptic insanity	5
Insanity of adolescence	2
Moral insanity	1
Total	91

By referring to the above table you will notice that there has been but little, if any, change in the class of patients compared with my last report, in that the greater number of them are hopelessly incurable, most of them having been confined in the damp, dark, and ill-ventilated county jails for years without adequate care and treatment before admission to this institution. This will account for the small number discharged as cured.

Since the last fiscal report the new buildings have been completed, this has made a great change for the better in the treatment and care of our unfortunate insane. The entire new addition is well heated and ventilated and is lighted by electricity. The new part was ready for the reception of patients September 1, 1898.

The health of the inmates has been very good during the year just past, there having been no epidemics among them. Though the number of patients allowed each county was doubled in August, 1898, and since then the quota of many counties has been filled mostly by chronics and incurables, leaving but little or no room for recent cases, and it is from the latter class of patients that we may reasonably expect a very large per cent of recoveries if placed early under favorable surroundings and appropriate treatment. Of the patients remaining in this institution

June 30, 1899, 74, or over 81 per cent. may be classed as incurable. It can be safely estimated that there are about 200 insane persons in the Territory of New Mexico, or one to every thousand of population.

While the year just passed has witnessed many improvements in and about the institution, we must not be unaware of the fact that we have not yet reached that degree of perfection which we would desire; many things remain to be done; many anticipations to be realized. The one thing we should keep prominently in view is that this is a hospital for the treatment of the insane rather than a home for the accommodation of incurables. There being a limited amount of room, we should at least limit the number to be admitted of those that are manifestly hopeless. If there were sufficient room it would not be necessary or desirable to deny admission to any, but as there is not these discriminations should be made in favor of recent and presumably curable cases. If this discrimination is not made, in a very short time the hospital will be entirely filled with chronics and incurables, and then those who might be benefited by hospital residence and treatment will be permanently excluded and they, in turn, swell the already too large number of the most pitiable of human beings. This policy would, in individual cases, seem to work a hardship, but when considered from the broad view of accomplishing the greatest amount of good for the very limited amount of money at our disposal, it must be considered as correct and should be adopted.

Besides the improvement in buildings, there has been much work done on the yard and garden in grading and terracing, a system of sewerage, planting of fruit and shade trees, as well as of shrubbery and many flowers of different varieties; most of the labor having been done by the patients, all of which have afforded healthful occupation to a number of the inmates, besides lending a more attractive appearance to the grounds and comfort to the unfortunates, and the garden has afforded a great abundance of delicious vegetables which have materially reduced the cost of maintenance of the institution. Not only have the patients been employed by outside work, but they have been occupied also inside by sweeping, scrubbing, doing dining-room and laundry work. The female patients have been engaged in household duties, sewing, and fancy work, according to individual capacity. At all times much care is observed not to overtax any patient.

Much the greater number of patients are idle because their mental and physical condition renders them incapable of doing any kind of work. When the weather permits the inmates are allowed a daily walk outside the hospital grounds, and every month dancing, music, and other entertainments are allowed much to the enjoyment of the patients.

The present available room, principally in the new addition, will accommodate about one hundred persons, and twenty more may be afforded adequate quarters as soon as we can have the old building renovated. The old building, known as the administration building, is now almost uninhabitable because of its being out of repair. For about five years this part of the institution has been very much overcrowded, literally filled from cellar to attic, and during this period but little repairing has been possible. The floors, doors, and much of the other woodwork must be put in new, partition walls changed, almost if not all of the building must be replastered, fixtures and plumbing in great part replaced in toilet and bath rooms, many changes and repairs and renovations are most urgently needed to meet the present demand.

During the meeting of our legislature last winter strenuous efforts were made to secure a special appropriation sufficient to make the above-mentioned repairs but I am sorry to say we were disappointed.

We have at present about 6 acres in garden and 3 acres in alfalfa, cared for by some of the few male patients capable of doing manual labor, the returns of which make a very noticeable reduction in our running expenses. We are now feeling, more than ever before, the lack of sufficient land for garden and farming purposes, and will feel this need still more in the early future. If an additional tract of land, under irrigation, though small, could be placed at our disposal enough could be produced at a very slight expense to keep many hogs, poultry, and more milch cows, and beef might be grown and fattened, which would further diminish the running expenses of the plant.

I will presume to suggest that measures be taken to secure not less than 60 acres more land under ditch.

Very respectfully,

W. R. TIPTON,
Medical Superintendent.

The BOARD OF DIRECTORS OF THE INSANE ASYLUM OF NEW MEXICO.

LAS VEGAS, N. MEX., *August 15, 1899.*

DEAR SIR: I have the honor to submit the following report of the transactions of the department under my charge of the insane asylum of New Mexico from November 1, 1898, to June 30, 1899:

The average daily attendance of patients was 77.

Number of meals furnished, 55,902.

Total cost of food supplied consumed, $2.700, making cost per meal, 4.83 cents; cost per day, 14.49 cents; per month, $4.38½; for the eight months above mentioned, $35.06¼, or an average yearly cost for each patient of $52.59¾.

The hospital for the insane has about 19 acres of land, 6 of which are being used in the cultivation of a vegetable garden, 3 acres are in alfalfa, the remainder being used for parks and pasture.

Five hundred and twenty-two shade trees were set out last spring taken from the hospital nursery.

A number of patients have been taught to cultivate the garden truck and 50,000 to 60,000 pounds of various kinds of vegetables adapted to this section of the country are yearly grown on these grounds, portions of which are consumed by the patients and the balance fed to stock.

The grading and excavating of the grounds is being continued daily and we hope soon to have the entire grounds in good shape.

The prospect for a good crop of vegetables this season is excellent.

Respectfully submitted.

G. W. WARD, *Steward.*

The PRESIDENT OF THE BOARD OF DIRECTORS
OF THE INSANE ASYLUM OF NEW MEXICO.

TAOS, N. MEX., *August 1, 1899.*

SIR: I have the honor to submit the following report for the New Mexico Territorial board of health.

HISTORICAL NOTE.

In 1882 there was adopted by the legislature of New Mexico, and approved, a statute regulating the practice of medicine, its details resembling the then existing statute of Illinois; but being unsatisfactory to the medical profession, and adversely criticised by the bar, various futile efforts were made by the New Mexico Medical Society to secure a better statute. In September, 1894, the Territorial board of medical examiners, in session at Albuquerque, appointed a committee of three of its members, who, with the president of the board, and the president of the New Mexico Medical Society, should prepare a bill looking to a better statute. In January, 1895, such a bill was ready, and having met the approval of a majority of the board, and of the officers of the New Mexico Medical Society, was presented to the legislature then in session. It became a law, but in its passage received several unnecessary alterations, which are indicated in this reprint by the sentences in italics. An attempt was made in drafting this bill to utilize the best materials from kindred statutes throughout the United States, as well as our own considerable experience.

AN ACT to regulate the practice of medicine and to establish a Territorial board of health in the Territory of New Mexico. Approved February 27, 1895.

Be it enacted by the legislative assembly of the Territory of New Mexico.

SECTION 1. Qualifications for practice: That no person shall practice medicine in any of its departments in this Territory unless such person possesses the qualifications required by this act. If a graduate in medicine, he must present his diploma by mail or in person to the Territorial board of health for verification as to its genuineness.

If the diploma is found genuine, and from a legally chartered medical institution in good standing, and if the person named therein be the person claiming and presenting the same, the Territorial board of health shall issue a certificate to that effect, signed by all the members thereof, and such certificate shall be conclusive as to the right of the lawful holder of the same to practice medicine in this Territory. If not a graduate, the person practicing medicine in this Territory shall present himself before said board and submit himself to such examination as the board may require, and if the examination be satisfactory to the board, the said board shall issue its certificate in accordance with the facts, and the lawful holder of such certificate shall be entitled to all the rights and privileges herein mentioned: *Provided*, That any person who shall have practiced medicine continuously for the period of ten years in this Territory prior to the passage of this act shall be entitled to a license or certificate without examination, upon the payment of the fee for such license or certificate.

SEC. 2. Territorial board of health—Organization: That a board is hereby established which shall be known under the name and style of the "New Mexico Territorial Board of Health," to be composed of seven practicing physicians of known ability and integrity, who are graduates of medical schools of undoubted respectability, and holding licenses to practice in this Territory, giving each of the three schools of medicine (known as the regular, homeopathic, and eclectic schools) a representation, as follows, to wit: Four physicians of the regular, two of the homeopathic, and one of the eclectic school or system of medicine. The members of this board shall be appointed by the governor, and shall hold their office two years, and all vacancies shall be similarly filled as soon as the governor is notified thereof by the secretary of the board.

The Territorial board of health shall organize within three months after the passage of this act; it shall procure a seal, and shall receive through its secretary applications for certificates and examinations; the president and secretary shall have the authority to administer oaths, and the board shall take testimony in all matters relating to its duties; it shall issue certificates to all who furnish satisfactory proof of having received diplomas or licenses from legally chartered medical institutions in good standing, as may be determined by the board. Applicants for certificates, being graduates, or to all who now have licenses to practice in the Territory, issued by the present or former board of medical examiners, shall pay a fee of five dollars to the secretary of the board, who shall turn the same into the treasury of the board.

SEC. 3. Verification of diploma—Affidavit: The verification of the diploma or certificate shall consist in the affidavit of the holder and applicant that he is the lawful possessor of the same, and that he is the person therein named; and any person swearing falsely shall be deemed guilty of perjury and shall be punished accordingly.

SEC. 4. Examinations by board: All examinations of persons not graduates or licentiates shall be made directly by the board, and may be made in whole or in part in writing, and shall be of an elementary and practical character, sufficiently strict to test the qualifications of the candidate as a practitioner. The fee for examination shall be twenty dollars, and said fee shall be paid into the treasury of the board.

SEC. 5. County clerk to record: Every person holding a certificate from the Territorial board of health shall have it recorded in a book provided for the purpose in the office of the clerk of the county in which he resides, within three months from its date, and the date of recording shall be endorsed thereon; he shall then be entitled to practice in any part of the Territory, but must again record his certificate in case of removing his permanent residence to another county.

SEC. 6. Refusal or revocation of certificate: The Territorial board of health must refuse to issue certificates to individuals guilty of unprofessional or dishonorable conduct, and it may revoke certificates for like causes.

SEC. 7. Definition of "to practice medicine:" For the purposes of this act, the words "practice medicine" shall mean to investigate or diagnose, or offer to investigate or diagnose, any physical or mental ailment of any person, with a view to affording relief, as commonly done by physicians; to suggest, recommend, prescribe or direct, for the use of any person, any drug, medicine or appliance, apparatus or other agency, whether material or not material, for the cure, relief, or palliation of any ailment or disease of the mind or body, or for the cure or relief of any wound, fracture, or bodily injury or deformity, after having received, or with the intent of receiving therefor, either directly or indirectly, any bonus, gift, or compensation: *Provided*, This act shall not prevent people who are entitled to sell medicine under the laws of this Territory from recommending the same; but nothing in this act shall be construed to prohibit gratuitous service in cases of emergency, or the domestic administration of family remedies, or women from practicing midwifery; and that this act shall not apply to surgeons in the service of the United States in the discharge of their official duties.

SEC. 8. Penalty for practicing without certificate—Using another's diploma: Any person practicing medicine or surgery in this Territory without the certificate issued by this board, in compliance with the provisions of this act, shall, for each and every instance of such practice, forfeit and pay to the Territory of New Mexico, for the use of the said Territorial board of health, the sum of one hundred dollars for the first offense and two hundred dollars for each subsequent offense, the same to be recovered in an action of debt before any court of competent jurisdiction; and any person filing, or attempting to file, as his own, the diploma or certificate of another, or a forged affidavit of identification, shall be guilty of a felony, and, upon conviction, shall be subject to such fine and imprisonment as are made and provided by the statutes of the Territory for the crime of forgery.

SEC. 9. Judgment upon conviction—Appeal: Upon conviction of either of the offenses mentioned in this act, the court shall, as part of the judgment, order that the defendant be committed to the common jail of the county until the fine and costs are paid, and, upon failure to pay same immediately, the defendant shall be committed under said order: *Provided*, That either party may appeal in the same time and manner as appeals may be taken in other cases, except that where an appeal is prayed in behalf of the Territory no appeal bond shall be required to be filed, whether the appeal be from a justice of the peace, or from the district, county, or circuit court, or from the appellate court, but it shall be sufficient in behalf of the Territory of New Mexico for the use of the Territorial board of health to pray an appeal, and thereupon appeal may be had without bond (or) security.

SEC. 10. Solicitor-general and district attorneys to prosecute: It shall be the duty of the solicitor-general and the district attorneys to prosecute any and all persons who shall be guilty of violating the provisions of this act.

SEC. 11. Repeal: All laws and parts of laws in conflict with the provisions of this act are hereby repealed, and this act shall be in force and effect from and after its passage.

Since the passage of the foregoing act there has been 137 physicians licensed by the board.

The board does not recognize diplomas from medical schools that do not require a four-year high-school course or its equivalent before matriculation, and four years' course of study, no two courses of lectures the same year.

All applicants with diplomas from medical colleges below this standard must pass a satisfactory examination.

All foreign diplomas must be supplemented by an examination.

All applicants must furnish satisfactory evidence of good moral and professional standing.

Three licenses have been revoked for unprofessional and dishonorable conduct.

The only duties of this board are to carry out the provisions of law regulating the practice of medicine, and it has no authority in other matters of public health.

The medical board should be empowered by an act of the next legislature to pass all necessary rules and regulations in regard to public health—particularly of our larger towns and cities—restrict and quarantine cases of epidemic disease. It should have power and funds, when necessary, to enforce a rigid quarantine.

The following resolution was passed by the board at its meeting June 19, 1899:

"Examinations will be required of all applicants to practice medicine in New Mexico who shall graduate after July 1, 1897, from any medical college which does not require of matriculants, as a minimum evidence of sufficient general education, a high-school certificate or its equivalent, and, for graduation, proof of four years' study of medicine and four terms of lectures occurring in four separate years.

"The previous standard of three years' study and three terms of lectures in three separate years, with the preliminary requirement of matriculants of a high-school certificate or its equivalent, will be maintained for all applicants who graduated between July 1, 1890, and July 1, 1897.

"According to a resolution of the New Mexico Territorial Board of Health, adopted April 24, 1899, each applicant must furnish, as references regarding moral character and professional standing, two or more names of reputable physicians, preferably the president and secretary of state licensing board, or president and secretary of State medical society of State where applicant last resided."

Respectfully submitted.

T. P. MARTIN, M. D., *Secretary*.

HON. MIGUEL A. OTERO,
Governor of New Mexico.

BOARD OF PHARMACY.

I have the honor of submitting herewith the ninth annual report of the New Mexico Board of Pharmacy, to December 1, 1898. On account of the limited amount of funds at the disposal of the board, the reports have usually been confined to a typewritten document to the governor only. This report is intended to be more complete, and embraces about all that is of interest to the pharmacists of the Territory, showing as it does the work of the board, with a complete financial statement and a list of registered pharmacists, minor pharmacists, and temporary certificates; also, a copy of the original pharmacy law, with its amendments, and the poison law.

The condition of pharmacy in our Territory is apparently better than at any time since the law was enacted, and the druggists seem to understand and observe the law more closely. No instance of open or intentional violations of the law have been brought to the notice of the board, and the few minor irregularities have been satisfactorily corrected without the necessity of resorting to the expense or annoyance of a suit.

The board is pleased to observe that the standard of our profession in New Mexico is gradually assuming a position equal to that of any of the States, and desires to express its appreciation of the earnest support and assistance rendered by the pharmacists of the Territory.

The meetings of the board have been held semiannually, as the law provides, except in a few instances when the funds were insufficient to defray the expenses. The minutes of the meetings are not of sufficient interest to warrant their publication in this brief report, but they are open to inspection at any time to anyone interested.

Examinations are conducted, both oral and written, and it is the policy of the board to thoroughly test the practical ability of the applicant, and to maintain a standard equal to that of any of the older State boards.

During the year 1898 two meetings have been held. One at Silver City on March 20 and 21, and one at Albuquerque on October 5 and 6.

At Silver City there were four applications on file, but only one candidate being present for examination, viz, J. E. Irvine, Deming, who was successful.

At the meeting in Albuquerque six applications were on file. The following passed successful examinations: Robert Mann, Albuquerque; Chris Christensen, Albuquerque; Mrs. Emily K. Hilton, Socorro.

Aside from the above twelve have been registered on diplomas and credentials from other State boards.

It is to be regretted that the New Mexico Pharmaceutical Association does not receive more earnest support. This association was temporarily organized in 1893, and at a subsequent meeting held at the San Felipe Hotel, Albuquerque, September 20, 1894, a permanent organization was effected, but on account of lack of attendance and interest no meeting has been held since the latter date.

It is desirable that this association should be perpetuated, not only for educational and commercial benefits, but as an assistant and stimulant to the board of pharmacy.

In most of the States the pharmaceutical associations recommend or nominate the appointees for membership of the pharmacy boards, and in this way our association could assist in the selection of, or recommend to the governor, the names of such as would be most satisfactory or best qualified for appointment.

Respectfully submitted.

W. C. PORTERFIELD,
Secretary and Treasurer.

LIST OF MEMBERS OF THE BOARD, WITH DATE OF EXPIRATION OF TERM FOR WHICH THEY WERE APPOINTED.

Bernardo Ruppe, Albuquerque; term expires March 19, 1903.
E. G. Murphy, Las Vegas; term expires March 19, 1902.
W. C. Porterfield, Silver City; term expires March 19, 1901.
M. G. Paden, White Oaks; term expires March 19, 1900.
A. J. Fischer, Santa Fe; term expires March 19, 1899.

FINANCIAL STATEMENT.

1898.		
Mar. 20.	Balance on hand last report	$196.20
Nov. 1.	70½ renewal fees	141.00

DUTIES OF THE SECRETARY.

It shall be the duty of the secretary to attend all meetings of the board, and make a full record of the proceedings of the same; he shall keep a book of registration, in which shall be entered the names and places of business of all persons registered under the pharmacy law; also specify such facts as said persons shall claim to justify their registration. The secretary shall prepare all certificates ordered by the board, and shall notify each member by mail of the meetings of the board, and do such other clerical work as the board may direct; he shall give such bond, to be approved by the board, as the board may from time to time direct.

He shall keep a full account of all moneys received and disbursed, and specify for what purposes, and make a full report of receipts and disbursements and amount of cash on hand, at each regular meeting, or whenever it is demanded by the board.

MEETINGS.

The regular meetings of the board shall be held semiannually, as a majority of the board may direct, and at such place as they shall elect. Upon the written application of three members of the board the president shall call special meetings of the board, and shall cause notice thereof to be given to each member at least seven days in advance of such meeting.

STANDING COMMITTEES.

The committee on complaints and grievances: The duties of the committee on complaints and grievances shall be to carefully examine into all complaints and grievances made to the board pertaining to the violation of the pharmacy law, except adulterations and the sale of poisons. All such complaints and grievances shall be referred to said committee and a written report submitted thereon.

COMMITTEE ON ADULTERATIONS AND POISONS.

The duties of the committee on adulterations and poisons shall be to carefully examine into all complaints made to the board pertaining to violations of the pharmacy law in regard to adulterations and the sale of poisons; and all such complaints shall be referred to said committee, and a written report made thereon, before an analyst or chemist can be employed, or any prosecution shall be ordered by the board.

COMMITTEE ON AUDITING AND FINANCE.

The duties of the committee on auditing and finance shall be to carefully examine into all claims presented to the board for payment and to report upon the correctness and allowance of the same; to examine the books and accounts of the secretary and treasurer, and make recommendations as to the manner and form in which such books and accounts shall be kept; to report at the regular meetings of the board upon the condition of the books and accounts of the secretary and treasurer, the amount of receipts and expenditures for the fiscal year, and the amount of cash on hand.

RULES.

Rule 1.—Any member of the board may, upon presentation of credentials or other satisfactory evidence of capability, grant a temporary certificate, which shall expire at the next meeting of the board. It shall also be the duty of any member of the board, in his respective district, to see that all practicing pharmacists renew their annual certificates; and that they have a general supervision over their districts, respectively, and shall report all infractions of the law to the board and their action taken in behalf of the same.

Rule 2.—Registered pharmacists who change their location must report the same within ten days, giving their present address to the secretary.

Rule 3.—Proprietors of pharmacies not registered themselves, who conduct pharmacies under charge of a registered pharmacist, must report any change they may make in said registered pharmacist within ten days after such change occurs.

Rule 4.—This board will recognize certificates issued by other State boards which have been granted by examination, wherein a grade of at least 75 per cent has been attained and a practical experience of at least three years is required. A certificate from the secretary of such board to that effect must accompany the application.

Rule 5.—This board recognizes diplomas from an incorporated college or school of pharmacy that requires a practical experience in pharmacy of not less than three years before granting a diploma.

NEW MEXICO PHARMACY LAW.

[Compilation of 1897.]

SEC. 3717. That from and after the passage of this act it shall be unlawful for any person, not a registered pharmacist within the meaning of this act, to conduct any drug store, pharmacy, apothecary shop, or store for the purpose of retailing, compounding, or dispensing medicines in the Territory of New Mexico, except as hereinafter provided.

SEC. 3718. That it shall be unlawful for the proprietor of any such store or pharmacy to allow any person except a registered pharmacist to compound or dispense the prescriptions of physicians except as an aid to and under the supervision of a registered pharmacist. Any person violating the provisions of this section shall be deemed guilty of a misdemeanor, and on conviction shall be liable to a fine of not less than five nor more than one hundred dollars.

SEC. 3719. The governor shall appoint five persons, all of whom shall have been residents of the Territory for three or more years and of at least eight years' practiced experience as druggists or pharmacists, who shall be known and styled the Board of Pharmacy for the Territory of New Mexico, one of whom shall hold the office for five years; one for four years; one for three years; one for two years; one for one year in the first instance, and thereafter the governor shall annually appoint one person to serve as a member of the board for five years. The persons so appointed shall constitute the board of pharmacy, and shall hold the office for the term for which they were appointed, or until their successors are duly appointed and qualified. They, the said board, and each of them, shall, within ten days after their appointment, or being apprised of the same, take and subscribe the usual official oath before a properly qualified officer of the county in which they reside. The said board shall organize within thirty days from and after their appointment and annually thereafter by the election of a president and secretary. A majority of the board shall constitute a quorum for the transaction of business. Said board shall have the power to make by-laws and all necessary regulations for the proper fulfillment of their duties under this act without expense to the Territory. Any vacancy occurring in said board shall be filled by an appointment by the governor for the unexpired term.

SEC. 3720. The board of pharmacy shall register in a suitable book, a duplicate of which shall be kept in the office of the secretary of the Territory, the names and places of residence of all persons to whom they issue certificates and the dates thereof. It shall be the duty of said board of pharmacy to register, without examination, as registered pharmacists, all druggists and pharmacists who are engaged in business in the Territory of New Mexico at the passage of this act, as owners, principals, or clerks of stores for retailing, compounding, or dispensing drugs, medicines, or chemicals for medical use, or for compounding and dispensing physicians' prescriptions: *Provided*, No druggist's clerk shall be so registered unless he be eighteen years of age and has been engaged in some store or pharmacy where physicians' prescriptions were compounded and dispensed, for the space of three years next preceding the passage of this act. In case of the failure or neglect of any person to apply for registration within sixty days after the organization of the said board of pharmacy, he shall have forfeited the privilege of registering without examination, and shall only be registered after examination as set forth in section three thousand seven hundred and twenty-one.

SEC. 3721. That the said board of pharmacy shall upon application, and at such time and place and in such manner as they may determine, examine each and every person who shall desire to conduct the business of selling at retail, compounding and dispensing drugs, medicines, or chemicals for medical use, or compounding or dispensing physicians' prescriptions as pharmacists in the Territory of New Mexico, and if a majority of said board shall be satisfied that said person is competent and fully qualified to conduct said business of compounding or dispensing drugs, medicines, or chemicals for medical use, or to compound and dispense physicians' prescriptions, they shall enter the name of such person, as a registered pharmacist, in the book provided for in section three thousand seven hundred and twenty: *Provided*, That all graduates in pharmacy having a diploma from an incorporated college or school of pharmacy that requires a practical experience in pharmacy of not less than three years before granting a diploma may, in the discretion of the board be entitled to have their names registered as registered pharmacists by said board, without examination. The board of pharmacy shall issue an appropriate certificate to each person registered, which certificate must be conspicuously displayed in every store or place described in this section. Said certificate must be renewed twelve months after each date of issue.

SEC. 3722. The board of pharmacy shall be entitled to demand and receive from each person whom they register and furnish a certificate as a registered pharmacist, without examination, the sum of two dollars, and for each and every person whom they examine the sum of five dollars, which shall be in full for all services. In case the examination of said person shall prove defective and unsatisfactory to the board and he be declined registration, he shall be permitted to present himself for reexamination within twelve months thereafter and no charge shall be made for such examination.

SEC. 3723. The board of pharmacy shall hold semiannual sessions at such times and places as the board may determine; other sessions of the board may also be held whenever and wherever a quorum of the board is present.

In the interim of the sessions of the board and upon satisfactory evidence of a fitness of an applicant, any one member of the board may, in his discretion, issue a temporary certificate, which shall authorize and empower the holder to conduct a drug store or pharmacy as set forth in section three thousand seven hundred and twenty-one. Such temporary certificate must be signed by one member, and shall expire and terminate at the date of the next succeeding semiannual session of the board after the granting thereof. No fee shall be demanded for the temporary certificate.

SEC. 3724. Every owner of a drug store in the Territory of New Mexico shall be held responsible for the quality of all drugs, chemicals, and medicines he may sell or dispense, with the exceptions of those sold in the original packages of the manufacturer or wholesale dealer, and also those known as proprietary medicines. And should he knowingly, intentionally, and fraudulently adulterate or cause to be adulterated such drugs, chemicals, or medical preparations, he shall be deemed guilty of misdemeanor, and upon conviction thereof his license as a registered pharmacist shall be thereby revoked, and in addition thereto be liable to a penalty not exceeding five hundred dollars.

SEC. 3725. Any person who shall procure or attempt to procure registration for himself or for another, under the act, by making or causing to be made false representations, shall be deemed guilty of a misdemeanor, and shall, upon conviction thereof, be liable to a penalty of not less than five and not exceeding one hundred dollars, and his name, together with the name of the person so registered, shall be stricken from the register.

SEC. 3726. Any person not a registered pharmacist as provided in this act who shall conduct a store, or a pharmacy, or place for retailing, compounding, or dispensing drugs, medicines, or chemicals, for medical use, or for compounding or dispensing physicians' prescriptions in the Territory of New Mexico, or who shall take, use, or exhibit the title of registered pharmacist, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, be liable to a penalty of not less than five nor more than one hundred dollars: *Provided further*, This act shall not apply to physicians putting up their own prescriptions, nor to the sale of patent proprietary medicines, nor to the sale of those articles commonly known as grocers' drugs, except those articles that are denominated poisons under the law known as the New Mexico poison law; nor to any regularly licensed physician of the Territory of New Mexico engaged in the drug business in towns or cities situated twenty miles or more from a regular licensed pharmacist engaged in the drug business.

SEC. 3727. If any registered pharmacist shall go out of the drug business, and remain out for a period of twelve months, his certificate as registered pharmacist shall thereupon expire.

SEC. 3728. All suits for recovery of the several penalties prescribed in this act shall be prosecuted in the name of the Territory of New Mexico, in any court having jurisdiction, and it shall be the duty of the prosecuting attorney of the county where such offense is committed to prosecute all persons violating the provisions of this act upon proper complaint being made. All penalties collected under the provisions of this act shall inure to the expense fund of the board which may occur.

SEC. 3729. It shall be the duty of the said board to grant to persons or merchants in towns or camps having no drug store, minor certificates without charge, as they may deem proper, to vend such medicines, compounds, or chemicals as are required by the general public: *Provided*, That this law is not to be so construed as to prevent ranchmen or miners not within reach of a store or place where drugs are sold, from dispensing medicines to their families or employés: *Provided further*, That it shall be the duty of the secretary of said board to render an accurate annual statement to the governor of the Territory of all moneys received and expended by said board during each year, and he shall also report upon the general condition of pharmacy throughout the Territory.

SEC. 3730. The meetings of the pharmacy board shall be opened to registered pharmacists who shall be permitted to be present at the examination of applicants for registration.

SEC. 3731. Any member of the board of pharmacy who shall violate any of the provisions of this act, or who shall neglect or refuse to report any of the violations of the provisions of this act that may be within his knowledge, within ten days of the time said violation comes to his knowledge, shall be removed from office by the governor upon such showing as may be deemed satisfactory by the executive, and such vacancies shall be filled by the governor as now provided by law.

POISON LAW.

SEC. 1259. Every apothecary, druggist, or other person, who shall sell and deliver any arsenic, corrosive sublimate, prussic acid, or any other violent poison, without having the word "poison," and the true name written thereof, written or printed in Spanish and English, upon a label put upon the vial, box, or package that contains the same, shall be punished by a fine not exceeding one hundred dollars.

SEC. 1260. That hereafter it shall be unlawful for any person not a registered pharmacist to sell or dispense any poisons enumerated in Schedules A and B, except as approved by section fourteen of New Mexico pharmacy law, approved February 15, 1889. (Section 3726, Compiled Laws of 1897, quoted hereinbefore in pharmacy law.)

Schedule A.—Arsenic, mercury, strychnia, and their preparations of salts, acetate of lead, tartar emetic, cyanide of potassium, hydrocyanic acid, and all other poisonous vegetable alkaloids and their salts, essential oil of bitter almonds, opium and its preparations, except paragoric and such other preparations of opium containing less than two grains to the ounce.

Schedule B.—Aconite, belladonna, coca, colchicum, conium, nux vomica, henbane, savin, ergot, cotton root, cantharides, creosote, digitalis and their pharmaceutical preparations and alkaloids, croton oil, chloroform, chloral hydrate, sulphate of zinc, mineral acids, carbolic acid, and oxalic acid, without distinctly labeling the box, vessel, or paper in which the said poison is contained, with the name of the article, the word "poison," and the name and place of business of the seller; nor shall it be lawful for any person to sell or deliver any poison enumerated in Schedules A and B unless, upon due inquiry, it be found that the purchaser is aware of its poisonous character, and represents that it shall be used for a legitimate purpose; nor shall it be lawful for any registered pharmacists to sell or dispense any poisons enumerated in Schedules A and B without, before delivering the same to the purchaser, causing an entry to be made in a book kept for that purpose, stating the date of sale, the name and address of the purchaser, the name of the poison sold, the purpose for which it is represented by the purchaser to be required, and the name of the dispenser; such book to be always open for inspection by the proper authorities, and to be preserved for at least four years. The provisions of this act shall not apply to the dispensing of poisons in not unusual quantities or doses, upon the prescriptions of practitioners of medicine: *Provided*, Nothing in this act shall be so construed as to prevent the sale of such poisonous articles as are directly used in mining or for the reduction or concentration of ores.

SEC. 1261. Any person violating the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction shall be fined in a sum not exceeding one hundred dollars, or by imprisonment in the county jail for not more than six months, or both, in the discretion of the court.

SEC. 1262. All fines recovered under the provisions of this act shall be paid to the treasurer of the Territorial board of pharmacy.

SEC. 1263. It shall be unlawful for any person to keep or maintain a place for the purpose of furnishing opium to others, or what is commonly known as a hop joint or opium joint: *Provided, however*, That the provisions of this section shall not, in any wise, apply to druggists who may dispense or sell the same upon the prescription of a physician.

SEC. 1264. Any person violating the provisions of the preceding section shall be deemed guilty of a misdemeanor, and upon conviction thereof before a justice of the peace, or the district court, or any competent tribunal shall be fined in any sum not less than twenty-five dollars nor more than two hundred and fifty dollars, or he shall be sentenced to imprisonment at hard labor, in the county jail, for a term of not less than one nor more than six months, or both said fine and imprisonment, in the discretion of the court or jury trying the case.

SEC. 1265. All fines imposed under the provisions of this act, one half shall go to the prosecuting witness and the other half to the treasurer for the benefit of the school district wherein the offense was committed.

CAPITOL REBUILDING BOARD.

SANTA FE, N. MEX., *September 20, 1899.*

SIR: Pursuant to your request for a report from the capitol rebuilding board in regard to the rebuilding of the Territorial capitol, I have the honor, in behalf of the board, to respectfully report that the work is progressing satisfactorily, and that it is expected the building will be completed before the coming winter is ended. Many changes for the better have been made in the class of material used, and among such changes I may mention the framework of the dome has been constructed of steel instead of wood, the stairways of iron, and the corridors have been laid with mosaic tiling. Instead of using wood lath, we have used wire. These changes make the building fireproof to a great extent and will reduce the fire-insurance rate very much, besides making a more beautiful structure. We have been retarded in our work by delays occasioned in procuring material, especially the wood finish, owing to the fact that factories manufacturing the required material have at this time more than they can attend to, and have had for a long time past, and contractors will not bind themselves to deliver any material at all unless ample time is given.

Respectfully submitted.

F. A. MANZANARES, *President, etc.*

Hon. MIGUEL A. OTERO,
Governor of New Mexico.

BOARD OF EQUALIZATION.

SIR: The board of equalization appointed by you at the last session of the legislative assembly begs leave to report that it has just completed the duties of its first session, which were those of hearing appeals and equalizing taxes only, the fixing of values being for the January meeting.

We have been in session for a week, and considered all appeals presented from the different counties, some of them having been taken by the Territory from the action of the county boards, under the new law providing therefor.

We find generally an improvement in the manner of listing and valuing property, as well as an increase in valuation of about $1,000,000 over that of last year.

While the amendments to the revenue law passed by the last legislature have only been in operation a few months, their good effect is even now apparent, and we have every reason to believe that next year will prove their very substantial value.

Very respectfully,

JAMES S. DUNCAN, *President.*
JOHN W. POE,
NUMA RAYMOND,
ALEJANDRO SANDOVAL,
Members of the Board of Equalization.
V. JARAMILLO, *Secretary.*

Hon. MIGUEL A. OTERO,
Governor of New Mexico.

TERRITORIAL LIBRARIAN.

I have the honor to submit the following report of the condition of the Territorial library at the present time:

The affairs of the Territorial library are controlled by a library board of trustees. This board is now composed of the following gentlemen: Hon. John R. McFie, ex officio chairman of the board, and the Hons. T. B. Catron and H. L. Waldo. The board has made the following additions to the library since I took charge of the same: Indiana Reports, 168 volumes; Iowa Reports, 91 volumes; Kansas Reports, 58 volumes; Kentucky Reports, 73 volumes; Maine Reports, 80 volumes; Michigan Reports, 103 volumes; New York Reports, 373 volumes; Pennsylvania Reports, 220 volumes; Texas Reports, 120 volumes; Vermont Reports, 23 volumes; one complete set of Session and Compiled Laws of New Mexico, from 1851 to 1893, 39 volumes; Century Dictionary (including Dictionary of Names), 7 volumes; Spanish-English Dictionary, Lopez and Bensley, 1 volume; Federal Cases, with Index, 31 volumes; Circuit Court Reports, 54 volumes; besides a number of volumes to fill up incomplete sets of some of the States' supreme court reports.

By the addition of the above-named volumes the library has been placed in excellent condition, as nearly all the States are represented, but it is far from complete. New text-books are needed. Such of these as we have are old and out of date. Such as it is, the library has been very useful to the courts.

The usual system of exchange has been maintained with the libraries of the different States, and we are continually receiving from them their publications. In exchange for this courtesy we have sent them the session laws of the last legislature, the New Mexico Reports and the Compiled Laws of 1897.

In pursuance of Chapter XXXII of the Laws of New Mexico, 1895, volumes 3, 4, 5, 6, 7, and 8 of the New Mexico Reports were published. The Territory purchased from the publishing house, at $3 per volume, 300 of each of these volumes and the library board of trustees purchased 100 of each. These books were delivered by the publishers at the Territorial library. About 80 copies of each of the above-named volumes have been distributed to State libraries, judges Supreme Court United States, judges supreme court New Mexico, Attorney-General United States, and to such persons and institutions as are designated by law. The remaining volumes are kept in the library.

Under the act of 1897 for the compilation of the laws of New Mexico, the public printer delivered at the library 500 volumes of said compiled laws in the Spanish language and 1,500 volumes in the English language. Of this number 136 copies, as authorized by law, were delivered to the secretary of the Territory for distribution to State libraries and members of the last legislature. I have delivered on orders of the Territorial treasurer the following number of volumes by him sold, as directed by law, at $8.50 per volume: English volumes, 144; Spanish, 87; total number of volumes sold, 231, yielding to the Territory the sum of $1,963.50.

The total number of volumes in the Territorial library is about 5,000. Over one-half of this number is made up of law books, the remainder consisting of State documents, executiv edocuments, patent reports, pamphlets, and miscellaneous books. It is a very valuable property to the Territory, and the board of trustees, as a guard against contingencies, has insured the same for $10,000, as follows: Five thousand dollars in the Royal Insurance Company of Liverpool and $5,000 in the American Central Insurance Company, of St. Louis.

The condition of the Spanish archives is not what it should be. Laid in ordinary shelves, they are exposed to the action of air and dust. These and the constant handling by many people eager to peruse their contents cause demolition, and they are fast crumbling away. Provision should be made for the preserva- of these archives, as they are very valuable from a historical point of view. Last fall Prof. Elliott Coues, of Washington, D. C., devoted some time in research here among these archives, and in his perusal of the different packages he came across fractions of that important historical document known as the "De Vargas Journal." These fractions were all put together, including others collected before, and the journal forms now one single batch of 100 folios dated 1693. I regret to say that a number of pages of this document are crumbling away, and still others are illegible. These papers, if lost or destroyed, can never be replaced, and a vast fund of historical data will be lost to the future historian. The oldest set of papers in the Territorial library is made up of one folio dated 1664, in which appears the only genuine signature known to exist in this country of the famous Count de Penalosa; another folio dated 1636, and a third batch consisting of six folios dated 1621. These papers are in a remarkably good state of preservation. I respectfully suggest that the legislature may adopt some measure which will preserve to the Territory forever the Spanish archives.

LAFAYETTE EMMETT,
Territorial Librarian.

ST. VINCENT HOSPITAL,
Santa Fe., N. Mex., June 30, 1899.

DEAR SIR: In compliance with your request, I herewith submit to your excellency the following report of St. Vincent's Hospital and Orphans Home for the year ended March 4, 1899.

The hospital is open to all the afflicted, and patients are admitted regardless of nationality or religion.

We appreciate the appropriation made to us by the Territory of New Mexico for conducting our institutions in this city, but a reference to the receipts and expenditures will convey the proof that the appropriation of $4,000 does not entirely cover the expenses of the hospital, for in excess of the appropriation the expenses amount to $737.10, which was met by a donation from the sanitarium and $114.10 from the miners' collection in Cerrillos.

Apart from the actual cost of supplies furnished the inmates, other necessaries in connection with an institution of this kind must be considered, such as bandages, towels, bed linen, blankets, dishes, etc., all of which must be replaced from time to time and for which purpose the Territory does not allow me to use one dollar of the appropriation. The bedding is no small item to be considered, for it must be destroyed to prevent contagion.

The hospital is attended by Drs. Sloan and Massie, who give their services free of charge, and their ever-ready response to all of the many calls made upon them has in a large manner insured our success. The Sisters appreciate, and take this opportunity to thank them for, their many courtesies and kind attention to the poor in the hospital.

Three of the Sisters devote their entire time and attention to the care and comfort of the sick in the hospital wards without compensation.

The Territory of New Mexico is indebted to us in back payments on appropriations to the amount of $13,000, and I deem it a great injustice that no provision was made by the last legislature to pay this deficiency, which, in justice to the Sisters, should have been done. Most certainly a lack of appreciation and interest for the welfare of the institution is shown, and it was far from honorable and just in those who should have done their duty in this matter.

Last January a statement from the auditor was received by me, showing the entire indebtedness to amount to a deficiency of $5,163.65 on the hospital account from the forty-fifth up to and including the forty-ninth fiscal year. Dating from the same time is $8,253.33 on the orphans' account, making the total indebtedness $13,416.98. These claims were the only ones not considered when provision was made to pay all deficiencies by the last legislature.

Referring to the report of St. Vincent's Orphan Home, I have to say: During the past year there was one death, caused by pneumonia. Otherwise the health of the children is excellent.

At the close of the forty-ninth fiscal year there were 32 children in the institution, a large majority being of Mexican parentage. The children are taught all kinds of housework, and in connection therewith the rudiments of a common-school education. They have class hours week days from 9 a.m. to 12 and from 1.30 p.m. to 4 p.m. One afternoon in each week is devoted to sewing. An apparent appreciation of the advantages which the orphans' school at Santa Fe offers to the poor children of the Territory is manifested by them.

Respectfully,

SISTER EULALIA, *Superior*.

Hon. M. A. OTERO,
Governor of New Mexico.

Report of St. Vincent's Hospital from March 7, 1898, to March 4, 1899.

SUPPLIES PURCHASED DURING THE YEAR, AND COST OF SAME.

Articles.	March.	April.	May.	June.	July.	August.	September.
Groceries	$98.42	$176.71	$159.53	$277.99	$199.08	$249.44	$196.75
Meat	72.00	70.50	76.90	70.00	74.00	76.85	40.00
Feed for cows	8.00		20.00	13.75	9.00	27.20	
Tea and coffee					41.00		49.75
Drugs	25.66	17.90	18.10	8.28	9.45	12.95	12.40
Water	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Bread	26.66	26.66	26.66	26.66	24.20	33.33	26.66
Coal and freight		73.30	11.50				63.80
Coal oil	10.50	5.25	5.25	5.25	5.25	10.50	10.50
Butter	19.69	18.38	22.57	15.12	34.74	41.06	19.63
Pauper burials	6.25		6.25	6.25	6.25	6.25	6.25
Total	277.18	398.70	356.76	433.30	412.97	467.58	435.74

Articles.	October.	November.	December.	January.	February.	Total.
Groceries	$210.95	$211.21	$126.74	$123.51	$124.10	$2,154.43
Meat	50.60	30.00	40.00	70.00	75.00	745.85
Feed for cows	31.50		44.98	10.00	54.12	218.65
Tea and coffee						90.75
Drugs	20.00	19.80	11.00	16.75	28.30	200.59
Water	10.00	10.00	10.00	10.00	10.00	120.00
Bread	33.63	22.73	26.00	24.75	26.00	323.94
Coal and freight		71.92	68.40	76.00	78.43	443.35
Coal oil	10.50	10.50	10.50	10.50	10.50	105.00
Butter	20.68	23.04	22.40	20.39	20.59	278.29
Pauper burials	6.25			12.50		56.25
Total	394.11	399.20	360.02	374.50	427.04	4,737.10

Report of St. Vincent's Hospital from March 7, 1898, to March 4, 1899—Cont'd.

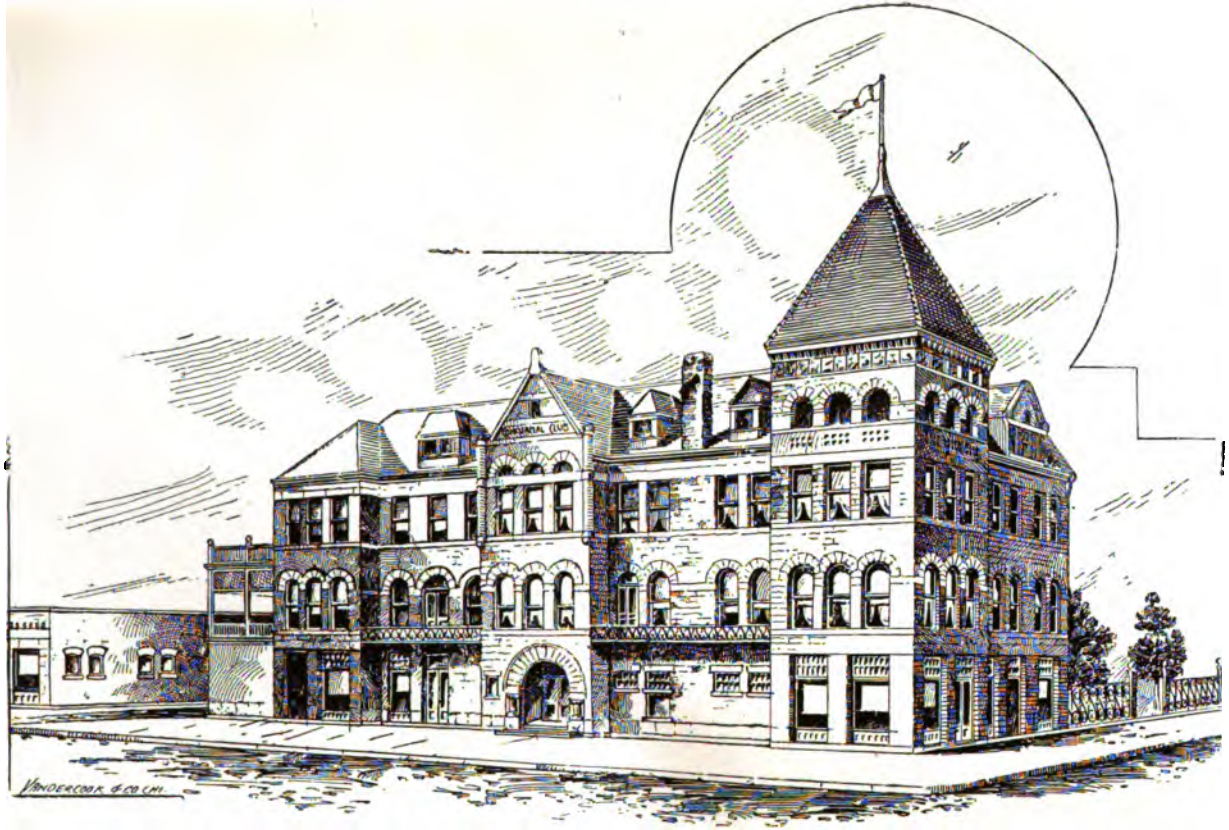
FINANCIAL STATEMENT.

Receipts.		Disbursements.	
From Territorial appropriation	$3,223.35	Groceries	$2,154.43
From Cerrillos collection	114.10	Meat	745.85
From sanitarium resources	623.00	Feed for cows	218.65
Balance due from Territory for forty-ninth fiscal year	776.65	Tea and coffee	90.75
		Drugs	200.59
		Water	120.00
		Bread	323.94
		Coal and freight	443.35
		Coal oil	105.00
		Butter	278.29
		Pauper burials	56.25
Total	4,737.10	Total	4,737.10

Number of patients in hospital March 6, 1898	20
Number of patients received during the year	62
Number of patients discharged during the year	47
Number of patients died during the year	16
Number of patients remaining in hospital March 4, 1899	19
Number of prescriptions filled	184
Total number of days	5,628

DISEASES TREATED.

Disease.	Number of cases.	Disease.	Number of cases.
Atrophy spinal cord	1	Liver complaint, chronic	1
Asthma	3	La grippe	2
Bright's disease	2	Mashed foot	2
Bronchitis, chronic	1	Optic neuritis, blind	1
Cripple for life	1	Paralysis, left side	1
Cataract	2	Paralysis	2
Cancer, facial	1	Paralysis, nervous	1
Dropsy	2	Peritonitis	1
Debility, general	3	Paralysis, partial	1
Debility and palsy	2	Poisoning, lead	1
Debility and old age	1	Pneumonia	2
Dysentery	1	Pulmonary tuberculosis	17
Dysentery, chronic	1	Rupture	1
Erysipelas	1	Rheumatism, chronic	4
Eyes burnt in mine	1	Rheumatism	2
Eye extracted	1	Sprained ankle	1
Fracture dorsal vertebra	1	Sciatica	1
Fractured skull	1	Stomach trouble	2
Frozen feet	1	Throat, ulcerated	1
Fever, malarial	3	Wound, gunshot, in face	1
Fever, mountain	1	Wound, gunshot, in leg	1
Injured foot	1	Tuberculosis of joints	1
Injury to head from falling rock	1		
Injured in railroad wreck	1	Total	82
Liver trouble	1		



COMMERCIAL CLUB, ALBUQUERQUE.

Report of St. Vincent's Orphan Home and Industrial School for the forty-ninth fiscal year, ended March 4, 1899.

Number of children in orphanage March 6, 1898	34
Number of children received during the year	30
Number of children taken out by relatives during the year	31
Number of deaths during the year	1
Number of children remaining in orphanage March 4, 1899	32

FINANCIAL STATEMENT.

Receipts.		Expenditures.	
From Territorial appropriation	$3,266.09	Groceries and bread	$1,550.65
From friends and children's relatives	183.20	Meat	720.40
From sanitarium resources	293.70	Milk and butter	450.80
Balance due on appropriation of $4,000	733.91	Drugs	65.00
		Dry goods	405.00
		Shoes	350.50
		Mending shoes	80.40
		Hose	102.60
		Hats and trimmings	50.75
		Coal and freight	425.90
		Coal oil	60.80
		Schoolbooks and slates	75.65
		Writing material and stamps	15.30
		Shoe polish and laces	14.25
		Laundry soap	53.00
		Toilet soap, combs, and brushes	25.90
		Wood	30.00
Total	4,476.90	Total	4,476.90

COUNTIES.

There are now 20 counties in the Territory of New Mexico, which are as follows:

NORTHERN TIER.

Colfax; county seat, Springer. Taos; county seat, Taos. Rio Arriba; county seat, Tierra Amarilla. San Juan; county seat, Aztec. Union; county seat, Clayton.

CENTRAL GROUP.

Mora; county seat, Mora. San Miguel; county seat, Las Vegas. Santa Fe; county seat, Santa Fe. McKinley; county seat, Gallup. Bernalillo; county seat, Albuquerque. Valencia; county seat, Los Lunas. Socorro; county seat, Socorro. Sierra; county seat, Hillsboro. Guadaloupe; county seat, Puerto de Luna.

SOUTHERN TIER.

Lincoln; county seat, Lincoln. Donna Ana; county seat, Las Cruces. Grant; county seat, Silver City. Eddy; county seat, Carlsbad. Otero; county seat, Alamogordo. Chaves; county seat, Roswell.

BERNALILLO COUNTY.

Bernalillo is one of the largest counties in New Mexico, both in area and population. It is of irregular shape, about 200 miles long from east to west, with an average width of 50 miles from north to south, containing a little over 10,000 square miles, being larger than any of the New England States except Maine.

The present population of the county is estimated at 35,000, one-third of which is within a radius of 5 miles from the court-house in the city of Albuquerque.

An act was passed by the last legislature providing for the creation of a new county out of a portion of the western end of Bernalillo, to be known as "McKinley County," but the law has not yet gone into effect.

The county presents a great diversity of topography and climate. There are several detached mountain ranges, having altitudes as great as 12,000 feet above sea level, large areas of high mesas or table-lands, with altitudes varying from 6,000 to 9,000 feet, and valleys ranging from 4,000 to 6,000 feet.

CHIEF INDUSTRIES.

The principal industry at present in the mountain districts is mining, though grazing is carried on to some extent, especially in the timbered sections of the mountains, and during the winter season, as there is rarely snow enough, except near the top, to cover the grass, and the trees and brush furnish the animals a good measure of protection against the severe winds, which sometimes sweep over the mesas at that season. There is also a little farming done in the canyons, though in a very small way, the principal crops being potatoes, beans, and chili, and some wheat and oats. The mountain sides, when not too steep or broken, are found to be excellent fruit lands, and the crop is more reliable there than in the valleys, because less liable to injury from late frosts in the spring. Apples, especially the winter varieties, do better in the mountains than elsewhere, and it is believed by many that fruit growing on the mountain slopes will become in time a very important industry. In nearly all the mountain districts the rainfall during the growing season is sufficient to produce crops without irrigation.

The mesas or table-lands are usually long stretches of plain, varying in width from 5 to 20 miles, and extending from the base of the mountains in the direction of the valley, with an inclination of only a few feet to the mile, and ending abruptly in a range of bluffs or sand hills, which form a background of brown for the verdure of the valley. These mesas are the principal grazing districts. In seasons of average rainfall the grass grows abundantly, and owing to its peculiar character it "cures" on the ground during the fall, and instead of "washing out" and becoming valueless, like the ordinary prairie grass, it is like hay and makes almost as good feed in the winter as in the summer. These plains are dotted at all times of the year with herds of cattle and flocks of sheep. During the summer and fall the animals have to be "held" comparatively near the springs or water holes, because cattle have to range where they can go to water during the warm weather once a day and sheep at least once in two days, but after the weather gets cool and a little snow falls on the grass the animals, especially the sheep, can go a long time without drinking, and this gives them practically a fresh field in the winter, because it enables them to range over sections that they could not reach in the summer because of the distance from water, and water in New Mexico is with the ranchman, as with the farmer, the first consideration.

IRRIGATION.

By the construction of storage reservoirs in the mountain canyons to catch the storm waters which come down in great volumes during the rainy season, in July and August, and to conserve the waters of the small streams, a large proportion of this mesa land can be rendered arable and made to produce good crops. The soil is unusually strong, especially in the mineral elements, being composed almost wholly of detritus from the neighboring mountains and lacking only the addition of a very little animal or vegetable matter now and then to keep it rich indefinitely. But as a rule the construction of such works would promise so small an income in proportion to the capital required that private enterprise will never undertake it as long as money can earn as much in other lines as it is able to earn now, and unless the reclamation of these lands shall be undertaken by the Federal Government it is probable that the mesas of New Mexico will be left in the undisputed possession of the cattleman and the sheepman for many years to come. There are a few places in the county where private reservoirs have been constructed and are found to be successful in the irrigation of small tracts, but no work of this character on a large scale has yet been undertaken.

Nearly all the farming done in the county is done on the valley lands but a few feet above the level of the streams, and, owing to the semiarid character of the country, has to be all carried on by irrigation. Until recently no effort was ever made to introduce any modern irrigating system, but the work has always been done by the primitive methods in vogue among the natives of the country more than two centuries ago. This has retarded the development of the county by repelling immigration in the farming districts, and more than half of the richest agricultural lands, even in the famous valley of the Rio Grande, are yet in a state of nature. But better ideas now prevail and there is a good prospect that the Aztec method of irrigation will soon be superseded by a modern American system. As long as the river carried more water than could be used the old system, with its great wastefulness, was not so objectionable, but of late years so much of the water of the river is taken out by the great canals in Colorado that the farmers of New Mexico are practically limited to such water as rises within our own Territory, and this is insufficient to meet the present demands; hence the necessity of greater economy in the use of water. A company incorporated under the laws of the Territory is now at work on the construction of a canal which will have a length of about 40 miles, covering the most populous portion of the valley, and it is believed that its construction will render practicable the cultivation of all the land within that distance, whereas at present only about one-third of it can be cultivated. This will make places for a large number of new citizens and will do much for the development of that portion of the Rio Grande Valley in question, which is one of the most desirable sections of the Territory and one in which the farmers and gardeners are never without a good home market for all of their products.

AGRICULTURE.

It is not claimed that this section can compete with the great grain-growing States of the West in the production of such field crops as wheat and corn, and it would not be wise from a business standpoint for the owners of the land to devote it to such a purpose, because it can be made to yield so much better returns when given to other crops. The true policy here is to have small farms closely cultivated, and yielding as land can only be made to yield under irrigation. In the wheat and corn growing States a man is supposed to need 160 acres to make a profitable farm, but a much smaller area is required here. A well-known writer, who has had nearly twenty years' experience as the owner of a farm in the Rio Grande Valley in Bernalillo County, contributed an article to a recent publication by the bureau of immigration of this Territory, in which he took the ground that 10 acres of the valley land of this county, cultivated under irrigation, could be made to bring the owner a larger net cash return every year than could be realized from a quarter section in any of the grain-growing States, and he sustained his position by facts and figures drawn from actual experience. Detailing the manner in which the result mentioned can be achieved, the writer says:

Sweet potatoes of most excellent quality yield abundantly in the soil of this valley, and do not require to be irrigated as often as most other crops, thus saving the farmer much labor. Both soil and climate seem to be peculiarly adapted to their growth, and the quality of the product is fully equal to the famous sweet potatoes of New Jersey, while a fair average crop will give from 900 to 1,000 bushels to the acre. They never sell in the fall for less than $1 a bushel, and those that are kept into the winter usually bring as much as $2. From this it will be seen that 1 acre cultivated in sweet potatoes in Bernalillo County will bring the farmer as much money as he could hope to realize from 80 acres in corn or wheat, in any of the grain-growing States, in a good year, and since the result is to be measured by dollars and not by acres, it will be seen that the irrigation farmer, although he may not be able to cultivate fields as broad as those of his neighbor in the "rain belt," has a better chance of success, and a decidedly better prospect of a balance to his credit in the bank at the end of the year.

The onion is another product that seems to be peculiarly adapted to this section of the country. The large white Spanish onions, which grow to greater perfection in New Mexico than anywhere else in the United States, afford one of the most profitable crops that can be grown in this county, and is also one that can be brought to perfection only under irrigation. On account of its beautiful silvery color and its peculiar mild flavor this onion finds ready sale in any part of the country, and always commands the highest price. The yield is about 500 bushels to the acre, and the price at home ranges from $1 a bushel in the fall to $3 a bushel in the winter and spring.

Celery and asparagus are also articles which are especially adapted to the soil and climate of this county, and attain here a degree of excellence but rarely found in such articles grown elsewhere. The celery is far superior to that grown in California, and is pronounced by all who try it fully as good in all respects as the Kalamazoo product, which is noted throughout the country for its superior quality. All the eating houses and dining cars on the western divisions of the Santa Fe Railway system now draw their supplies of celery from the gardens of Bernalillo County, whereas a few years ago they obtained such supplies from Michigan and California. And when it comes to asparagus this section can fairly claim to "beat the world," for nowhere else on the American continent is there produced asparagus which can at all compare with that grown in the valley of the Rio Grande. In many places in the valley there are large quantities of a salt which goes under the common name of "alkali," and which, though deleterious to some kinds of vegetables, is one of the favorite foods of asparagus, and does away with the necessity of applying salt to the ground, as is the custom wherever asparagus is grown in the Eastern or Middle States. It also causes the plant to attain in this section a degree of excellence in tenderness and flavor which is unknown in that grown elsewhere. During April and May, the months when the cutting is done, the shoots will attain, under favorable conditions a growth of about 6 inches a day, every particle of which is edible; there is no woody portion to be thrown away; the whole stock is soft and tender, and the flavor is proportionately superior. Sample lots of asparagus from this section have been sent to many parts of the country, and the verdict is always the same—"the best I ever tasted." Experience has shown that it will bear shipment to Portland, Me., and that is as far away from New Mexico as one can get in the United States, so it will be seen the whole country is open to us as a market, and that the article can be sold wherever introduced goes without saying, for it sells itself. An asparagus bed of 1 acre will yield, after the third year, about 200 pounds a day for sixty days in the year (which is as long as it is wise to cut it), and this will bring an average price of 10 cents a pound.

Thus, with 1 acre each of sweet potatoes, celery, onions, and asparagus, a man can make a good estimate of the money value of the crop that he will have for market each year. And in addition to this he will need 2 acres in alfalfa, and 2 in corn or oats for his cow and horse, and 2 for house lot, orchard, and kitchen garden. That makes 10 acres in all, and is as much land as any man needs in this section to farm for profit, while it is as much as the most industrious man can properly cultivate in the crops named. There is an abundance of good land for such purposes to be had in this county at fair prices, and with good facilities for irrigating, such as are now being provided, there will be room here in this line of business for at least a thousand families, convenient to as good a market as there is anywhere in the West.

GALLUP.

The great industry of New Mexico for centuries to come will be mining. The many mountain chains and detached ranges which are found in every part of the Territory are all seamed with mineral-bearing veins. In the mountains of this county there are workable veins of gold, silver, copper, lead, and coal. The principal coal-mining industry of the Territory is carried on at Gallup, in the western part of the county, about 15 miles from the Arizona line. Gallup is a town of about 2,500 people, and is the second town of the county in size and importance. It has good public schools and churches, and an enterprising weekly newspaper, and while strictly a coal-mining town is as orderly a place as will be found in any part of the country, East or West. There has been but little done in the immediate vicinity in the way of agricultural development, by reason of the scarcity of water for irrigation, but the soil is very rich, and wherever it can be cultivated yields abundant crops. The town is situated in the valley of the Rio Puerco of the West, on the Pacific slope, just west of the Continental Divide, and at an altitude of about 6,500 feet above sea level, which gives it a delightful climate, especially in summer. The Zuñi Mountains, a few miles south of the town, contain the most extensive forests of pine timber now to be found in any part of the United States south of Minnesota. The most of this timber is on public land or on land owned by the railroad company, but owing to the distance from any railroad but little of it has yet been utilized.

Gallup is on the Santa Fe Pacific Railway, a division of the main line of the Atchison, Topeka and Santa Fe, and is the principal town on that line between Albuquerque and Los Angeles. It furnishes regular employment in its coal mines to about 600 men, and its annual output exceeds 300,000 tons, or nearly one-half the total coal output of the entire Territory. The bulk of this is delivered to the railway company, and furnishes all the fuel used by the company between the Rio Grande and the Pacific Ocean. The operators here also send large quantities of "commercial" coal to Los Angeles and other southern California points, to Phenix, Tucson, and other places in Arizona, while many thousands of tons come east to Albuquerque, and are sent south into Texas and old Mexico. The coal is a lignite, excellent for steam and domestic purposes, burning without any clinker, and leaving but little ash, though it will not coke, and is not a desirable coal for gas making. There are five known workable veins, one above another, the lowest at a depth of less than 100 feet. The field extends to an unknown distance to the north and west of the town, and is considered practically inexhaustible. The first work in the development of this field was done in 1881, but the industry did not assume important proportions till 1884, so that it can be said to be now about fifteen years old.

This is the only important industry yet developed in the western part of the county. The country is well adapted to grazing purposes, but the most of it is embraced in the reservation of the Navajo Indians, and the flocks of this tribe graze over all the reservation and also the adjoining lands for several miles on either side. The treaty with the Navajos requires them to keep their people and their animals within the limits of their reservation, but this provision has never been enforced.

BLAND.

The town of Bland, in the northeastern part of the county, about 50 miles by the road from Albuquerque, is also a mining town, but the work at this point is confined to mining the precious metals. The town is the center of the famous Cochiti mining country, now well known as one of the most extensive and productive of New Mexico's many mining camps. It is situated in Pino Canyon, about 10 miles from the Rio Grande, and is surrounded on all sides by a rich mineral country. It was founded about five years ago, and has a population estimated at 1,000. The nearest railway point is at Thornton, on the main line of the Atchison, Topeka, and Santa Fe, about 18 miles distant, but a stage line furnishes comfortable transportation for passengers and a daily mail. The same coaches continue up the canyon from Bland, and across the mountain to Sulphur Springs, a well-known health resort, where the waters have been found to possess highly valuable medicinal qualities. The ores of the Cochiti camp are chiefly valuable for their gold. They are usually of low grade, but are of a character that can be worked in the camp. This, taken in connection with the fact that they are found in immense bodies, and are also very evenly mineralized, makes mining at Cochiti profitable and reliable.

In a description of this camp, a writer who recently visited the place says the Washington, Lone Star, and Crown Point mines are in the immediate vicinity of the town of Bland. It is estimated that there are 50,000 tons of ore on the "dump" of the Washington mine at the present time, worth $28 a ton. The property is in litigation at present and is not being worked. The Lone Star has a vein of rich sulphides, varying from 30 to 75 feet in width, and running perpendicularly up the mountain side. This vein has been worked steadily for the last two years, and there is now enough ore "in sight" to keep a mill with a capacity of 100 tons a day running for four years. Lying parallel with this vein, and only a short distance from it, is another which has not yet been touched. It is the intention of the company owning this property to put up during the coming year a mill for the treatment of their ores with a capacity of 100 tons a day. The site has been selected, and arrangements have been made for the construction of the mill. The mill at present in use is small, having a capacity of only 25 tons a day.

The Albemarle property, upon which more work is being done now than upon any other in the district, is only about 3 miles from Bland, but it is in another canyon, and hence the mountain has to be crossed in order to reach it. The road has a grade of 1,500 feet to the mile, but it is the best route than can be found, and over it, up one side of the mountain and down the other, have to be hauled not only all the products of the mine, but all the supplies for the camp. The mine is in a canyon not over 60 feet wide at the bottom, and room was made for the mill by blasting out space in the wall of the chasm, so that the buildings themselves appear to be a part of the mountain. The 250-horsepower engine and all the immense machinery for the mill were transported over the road above mentioned. The present mill has a capacity of 110 tons a day, and another of equal capacity is now in course of construction. The works now give employment to about 250 men, and that number will be nearly doubled when the new mill is completed. The difficulty of procuring fuel has determined the company to substitute electricity for steam power, and works for this purpose are now being constructed at the Cerrillos coal fields, in Santa Fe County, about 20 miles distant, from which point the current will be transmitted to the mill.

This is the largest mining enterprise in the county, and there is none larger in the Territory, but a good idea can be formed of the extent and richness of the Cochiti mineral field from the fact that there is room for at least a dozen more, of equal capacity, and ore enough to keep them all running full handed for at least a quarter of a century, and probably much longer. A railroad from some point on the Atchison, Topeka and Santa Fe to Bland is much needed, and if such a line were built, so that ores could be shipped out at moderate expense, reduction works sufficient to handle the output of the camp would probably be built along the Rio Grande, where the river would furnish a sufficient water supply, the lack of which is now one of the greatest obstacles in the way of the prosperity of the camp, and where the advantage of water power could also be had. This would greatly facilitate the development of the camp, since the small operators, who are unable to put up mills of their own, would thus be given a market for their ores.

OTHER CAMPS.

There are several other mining camps in the county, though the most of them have so far been unable to send much ore to market, owing to the undeveloped state of their mines. Prominent among these may be mentioned Hell Canyon, Coyote Canyon, Las Placitas, San Isidro, and Copper City. The last two named are copper camps and the others gold and silver. They all have rich leads and lack only development to make them good and profitable metal producers, but it requires a considerable amount of capital to transform a "prospect" into a producing mine, and capital in sufficient amounts to be of value for such purposes is very rarely, if ever, found among prospectors. In some of the camps named, especially Hell Canyon, considerable development has been done, and the work in every case has justified the estimates which the owners put upon the property. In the course of time, when men with money enough to make mines of these claims take hold of them, all the camps referred to will become prosperous mining districts. There is a large copper field at Copper City, and it has been worked some in years past, but it is so far from the railway and the product and supplies have to be hauled so far over a difficult road that operations in the camp can not be carried on with profit, even at the high price of copper now prevailing. At San Isidro some work is now being done, and the prospects are very encouraging. This is much more accessible than the Copper City camp, and it is believed that the ore can be hauled out and shipped at a profit, as it is not more than 25 miles from the line of the railway.

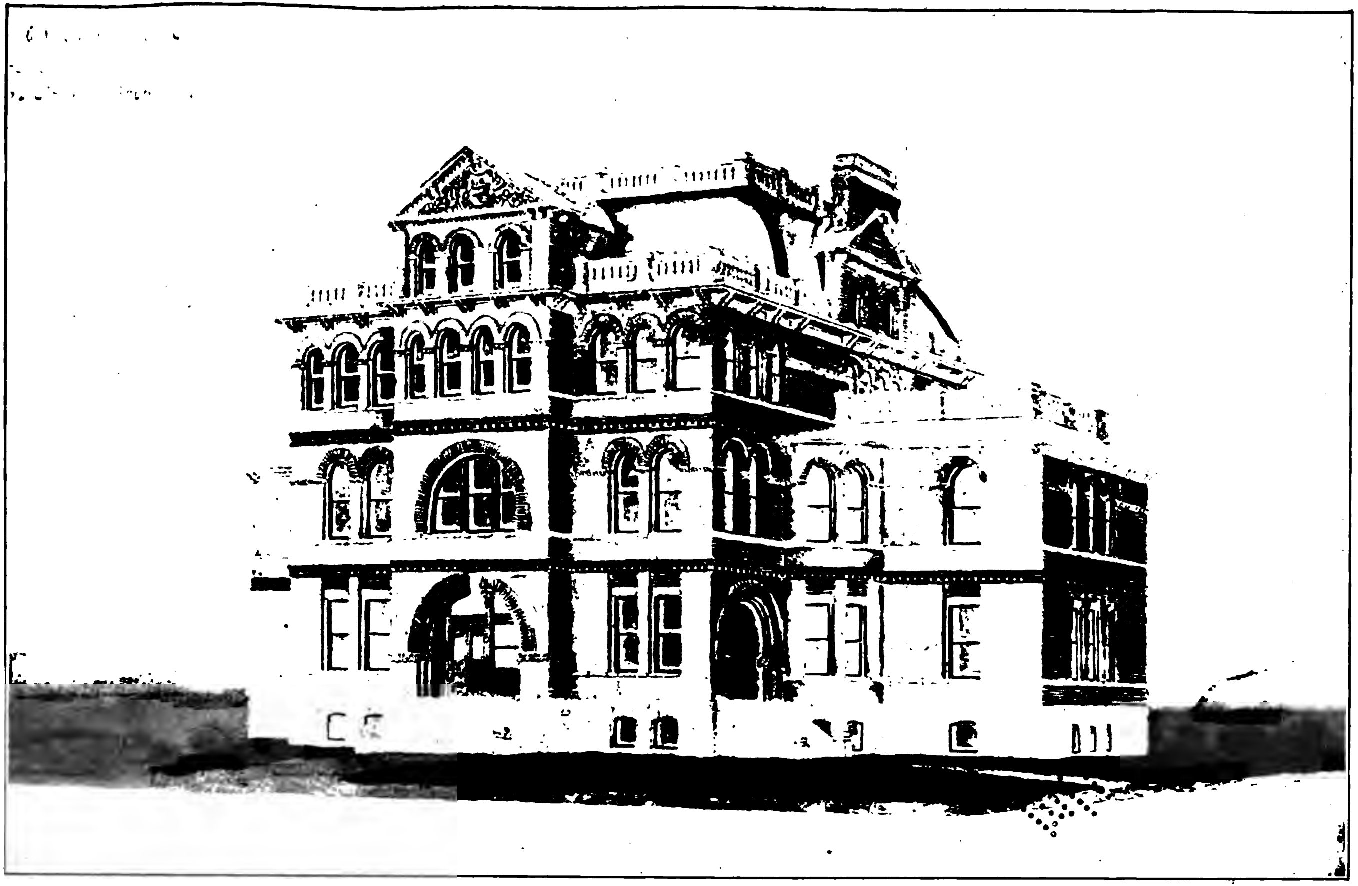
SUMMER RESORTS.

Some of the most delightful and enjoyable summer resorts in the Southwest are in the mountains of this county, and readily accessible from the towns. The Jemez Hot Springs, now well known and popular as a health and pleasure resort, is in the canyon of the Jemez River, twelve hours' ride from Albuquerque by stage, and the Sulphur Springs, to which reference has been made elsewhere, are situated about 10 miles farther up in the same canyon. Both these places are well-known resorts, and their reputation extends beyond the limits of the Territory. They are visited annually by many persons in search of health, and the waters are said to have a very salutary effect in nearly all cases. They are especially valuable to those afflicted with scrofulous disorders or rheumatism, and it frequently happens that rheumatic patients who have to be carried there on their beds appear to be restored to perfect health after a sojourn of a few weeks. These places are also popular pleasure resorts in summer, because the weather is rarely too warm for comfort, and there is excellent hunting and trout fishing.

Camp Whitcomb, in the Sandia Mountains, 17 miles east of Albuquerque, is also a very popular summer resort for people from the city. It is reached by a good road, through a very interesting portion of the country, and the trip can be made from town to the "Camp" with a carriage in about three hours. The place is situated high up on the mountain side in the pine woods, and its convenience to the city, as well as the beautiful scenery, the cool and bracing atmosphere, and the abundance of pure mountain water from numerous large springs, combine to make it a very attractive warm-weather resort, and it is visited by the people from the city in large numbers throughout the season. There are a score of other good natural resorts in the county, but as they are without accommodations for the public, they are visited only by those who can go prepared to "camp out," and most of the older residents of the country prefer this style of entertainment to the hotel or public house; hence, a large number of families in the city spend their summer vacation in camp in some favorite mountain canyon where they can have all the attractions of nature in her wildest moods, and yet be not so far removed from civilization but that the city can be reached in a few hours if necessary.

ALBUQUERQUE.

The county seat of Bernalillo County is Albuquerque, the largest city in the Territory and the commercial center of all that portion of New Mexico south and west of the Glorieta Mountains, embracing about three-fourths of the Territory, and also of the northern half of Arizona. Its merchants cover an undisputed trade area of about 100,000 square miles, or a district larger than the six New England States and the State of New York combined, which give the place a wholesale trade much larger than is done by many Eastern cities of three times its population. The present population of the place is about 12,000, about one-fourth of whom are natives of the Territory, and the remainder immigrants from the "States," coming from nearly all the States of the Union. There is not a more cosmopolitan city in the United States than Albuquerque, and the peculiarly American quality of "get there" is very distinctly in evidence on every hand. The importance of the position which this place occupies with reference to the business affairs of New Mexico and Arizona can be best illustrated by the fact that the United States Post-Office Department has made it the postal headquarters for the Southwest, and the post-office here is the depository for all the offices in both the Territories. The free-delivery system was inaugurated about ten years ago, and mail is delivered twice a day in all parts of the city and once a day



Public School, Albuquerque.

in the suburbs. It is also the most important point on the line of the Atchison, Topeka and Santa Fe Railway between Topeka and Los Angeles.

Many Eastern people imagine that in coming "away out to New Mexico" they would put themselves entirely beyond the pale of civilization, and for the benefit of such it may be said that they would find Albuquerque fully abreast with any Eastern city of double its size in everything that goes to make up the modern, progressive, American town—not even excepting those things that might better be left out, but which, like the buzzards, always gather where the carcass is. The town has a fine system of public schools with a large and elegant school building in each ward. There are in addition a number of good private schools, while denominational institutions are maintained by the Methodists, Presbyterians, and Catholics. It is also the seat of the University of New Mexico, established and maintained by the Territory, and endowed by the United States with a liberal donation of public land. The university building is located upon an eminence about 200 feet above the general level of the town, with an unobstructed view for many miles in every direction. With the Sandia Mountains 12 miles east for a background, the view takes in the Jemez Mountains, 60 miles north, the San Mateos, 70 miles west, and the Socorros and Magdalenas, 75 miles south, while with a glass may be seen the Mogollons, more than 125 miles to the southwest. The institution has a first-class faculty and ranks among the best Western colleges. A new building is now in course of erection, in which will be established a department that will be unique in its way, being the only one of its kind in the United States, and to be devoted to the study of climatology, with special reference to the effects of climatic conditions in the cure or prevention of disease, particularly diseases of the lungs. Mrs. Alice P. Hadley made the university a donation of $10,000 for this purpose on condition that a like sum would be contributed by the people of the Territory, whereupon the legislature appropriated $5,000 and the people of Albuquerque raised the remainder. The department will be known as "Hadley Hall," in memory of the late Walter C. Hadley.

In the matter of religious advantages the town is very thoroughly equipped. All the leading Christian denominations have societies here, with good, commodious houses of worship in which services are held regularly, and a Jewish society, organized some years ago, is now building a synagogue.

There are commodious places of public entertainment and amusement in which are given lectures, operas, theatrical entertainments, etc., and during the entertainment season the people of the place are never at a loss for "some place to go."

One of the institutions of Albuquerque worthy of special notice is the "Commercial Club." This represents a successful combination of business and social interests, and possesses within the one organization all the principal features of a chamber of commerce and a social club. To the active and effective work of this organization as a general "push committee" is attributed much of the prosperity which has been enjoyed by the town during the last ten years. It is quartered in its own building, erected especially for the purpose at a cost of $75,000, a large and elegant structure of red sandstone, and which is pronounced by visitors as fine a clubhouse as any west of Chicago.

The principal shops of the Atchison, Topeka and Santa Fe Railway west of Topeka are located here and furnish regular employment to some 600 men. These shops are being steadily enlarged, and it is said to be the intention of the company to have all of its work done here for all of that portion of its system west of the western line of Kansas, which will render necessary the employment at this place of about 1,200 men.

There is an excellent system of waterworks, furnishing the purest of water in great abundance, both for domestic use and for lawn irrigation, and at very low rates. Light is furnished by gas works and an electric-light plant, the streets being lighted by electricity.

All the streets are graded, and most of them are paved with a natural cement obtained from the neighboring hills, and laid upon a foundation of cobblestones, making a thoroughfare very firm, smooth, and durable. Excellent sidewalks line all the principal streets of the place, the popular material for this purpose being an artificial stone made of sand and Portland cement upon a foundation of gravel. This makes a walk as hard and smooth as natural stone, and apparently quite as durable.

The manufacturing interests of the town, in addition to the railway works above named, are represented by a foundry and machine shop, which turns out large quantities of work, especially for the many mining camps in various parts of the Territory ; a brewery and two ice factories, which ship their products to all parts of Mexico and west to the California line; two flouring mills, two mineral-water establishments, a planing mill, four brickyards, a cigar factory, a broom factory, and many smaller establishments.

There is an excellent opening here for a canning factory, to handle the fruits and vegetables which are grown in great abundance in this vicinity, and a beet-sugar factory.

Nearly all lines of business, commercial, mechanical, and professional, are represented in Albuquerque, and it has, in addition, a considerable population composed of persons not engaged in any active business, who seek the mild, dry atmosphere of this section, especially during the winter season, for health or pleasure.

There are two daily papers in the town, one issued in the morning and the other in the evening; five weekly papers, and one monthly publication, the last named being devoted to the interests of the mining industry. The town also possesses the largest and best free public library in the southwest, which is maintained by a special tax levied by the city council for that purpose.

CHAVES COUNTY.

In point of natural resources from which are rapidly being developed conditions that are soon to support a prosperous, wealthy people, Chaves is the banner county of New Mexico.

As originally organized in 1899 from a portion of the county of Lincoln, it was approximately 100 miles from north to south and 110 miles from east to west. The legislature of 1899 added territory on the southwest about 36 miles square. The greater part of this large area is grazing land, pure and simple, excellent grass lands which sustain thousands of cattle and sheep the year round and which, with the further development of water, which is quite practicable, will sustain even more. A great deal of the range area is held by cattle owners who have title, in many instances, to land on which are found springs and lakes, or on which they have dug or bored wells and put up windmills and, owning these improvements, are able to control, in a manner, the range contiguous. But there are large areas of grass lands on which no water is found during a very dry season, and it is in such localities that the development of water is most important, since without water the range, although covered with the best of feed, is practically well-nigh valueless. To this matter, the finding of a water supply, a great deal of attention is being devoted, at a heavy expense in some cases. Large well-boring machines, worked by gasoline engines, are being used, and the work is being carried on, slowly but surely, by men of means who understand the importance of procuring an adequate supply of water. The open-range stock interests were the original mainstay of the county and continue to be the most important in point of tax-paying ability. But the glory of Chaves County, at least at present, is the magnificent alfalfa farms with their herds of fine cattle—Herefords and Shorthorns—and their flocks of Shropshire sheep. Two large farms, one of 1,000 acres and another comprising 13,000 acres in both alfalfa and natural-grass pastures, are devoted exclusively to the Hereford industry, and have on them as fine animals as could be purchased from some of the leading breeders of registered Herefords in the United States. In fact the owners of these farms have among their fine stock many prominent prize winners. The owner of Sir Bredwell, who paid $5,000 for him, has lately purchased a 500-acre alfalfa farm 2 miles east of Roswell at a cost of $25,000, and will spend thousands of dollars making it a model Hereford home. The two farms referred to above are a surprise and delight to all who see them and the fine stock on them. Chaves County will soon be known as one of the most prominent, successful Hereford breeding grounds in the United States. The pioneers in the industry here are men of ample means who have "set their mark high" and whose dictionary does not contain the word "fail." Their friendly emulation and that of others to follow will result in a few years in placing Chaves County in the front rank of fine whiteface breeding centers. The breeders of Herefords at present are devoting their attention largely to the raising of young bulls. The home demand—the range-cattle owners—has so far taken all that could be raised. Inquiries are being made by large cattle owners from Old Mexico for young bulls with which to improve their herds, and they will be good customers.

Meanwhile the old "standby," the Shorthorn, is not being neglected. There are three herds of 400 to 500 each, two of which are being bred straight, while the other, some 500 Durham cows, are being crossed with Hereford bulls. These herds are also owned by men who are able to breed the best and will do so. The result will be watched with interest.

For the breeding of both Herefords and Shorthorns in the arid region the alfalfa farm is a necessity, and as that wonderful forage crop can not be raised successfully without irrigation Chaves County, with its abundant supply of water, possesses advantages superior to any other portion of the Southwest.

WATER SUPPLY.

The irrigation systems of Chaves County at present obtain their supply of water from three sources:

First. The immense springs in the vicinity of Roswell, fed by subterranean streams of artesian origin. From these five beautiful, limpid streams of water flow, known as the North Berrendo, Middle

Berrendo, South Berrendo, North Spring River, and South Spring River. These streams are the fishing grounds where disciples of Isaak Walton find rare sport catching black bass, which are abundant.

Second. The large number of artesian wells, for which this locality is becoming famous. The first artesian well in this county was drilled in the summer of 1891 and flowed about 10 gallons per minute. The last one, developed in the town of Roswell, was drilled in five days to a depth of 285 feet at a cost of $550 and flows over 2,000 gallons per minute. Of these wells there are now over 100 in the county, and the aggregate flow of water from them is already an important addition to the supply for irrigation, in addition to its use for domestic purposes. A large number of wells are utilized for piping water into dwellings and business houses, the strong pressure making it practicable. A recent successful experiment by a citizen of Roswell has demonstrated the fact that this pressure is ample to operate a small hydraulic ram, costing $20, by which water can be forced into a large tank 30, 40, 50, or more feet above the ground and furnish an abundant supply of water for the second, third, and fourth stories of buildings. The artesian-well development and its uses, including the furnishing of power for machinery, is in its infancy here, notwithstanding the satisfactory results that have already been obtained, and it is confidently believed that further developments, when test wells shall have been drilled to much greater depths, will make present results seem small. The deepest well so far is 950 feet and flows water much softer than any other well known in this region.

Third. The flood waters from the great watershed of the White Mountain region, which extends for nearly 100 miles west of Roswell. The most of this supply goes to waste for want of storage reservoirs, which some day in the near future will be built, and these flood waters will then be used to make productive from 1,000,000 to 1,500,000 acres of rich, fertile land which now produces only grama grass for pasturage. Plans for the building of these reservoirs have been under consideration for some years and need only brains, energy, and capital to carry them into effect and practical operation.

SHEEP AND WOOL.

This important industry has grown remarkably in the past two years owing to the favorable conditions existing, making it highly profitable to flock masters. The number of sheep in the county is estimated by well-informed persons at fully 250,000 head. The reasonable tax rate, ample range, and other favorable conditions have caused owners from other portions of the Territory to move their flocks to Chaves County, and the business has become one of the most important.

ROSWELL.

Roswell, the county seat of Chaves County, has a population of 2,500, which is steadily increasing; excellent graded schools, superior to those of many a larger, older town in the States; the New Mexico Military Institute, fully mentioned herein, an ice factory, telephone system, one bank, prosperous churches, a flourishing commercial club of 65 members, and nearly all lines of business, represented by live, energetic men. As these lines are written, the board of town trustees have just received the report of an expert on the estimated cost of a sewerage system for the town, amounting to $27,000, a 20-acre farm for the proper disposition of the sewage having been donated for that

FOUR-YEAR-OLD APPLE TREE, PECOS VALLEY.

purpose by a progressive, nonresident property owner of large means. An election for the purpose of voting bonds will be called, and will without doubt carry. An electric-light plant is under careful consideration and will be installed in the near future. Ten miles of streets are graded, many of them being shaded by handsome trees, and various public improvements are being projected for early consummation. The inhabitants of the town include people from every State and Territory in the Union, and are intelligent, wide-awake, and progressive. Plans for the establishment of a female college are maturing and promise to meet with substantial encouragement, amply sufficient to insure its success.

From January 1 to September 1, 1899 (eight months), the buildings completed and in course of construction in the town amount to $115,000.

FRUITS.

The fruits raised in the Pecos Valley are the admiration and delight of all who see and taste them, particularly the apples and pears. When orchardists learn to plant peaches only on high ground, better results will be obtained, as it is noticed that those so situated bear without fail. Grapes and cherries have been neglected, but both are raised to some extent and of the finest flavor, particularly the former. Chaves County fruit takes first premium wherever exhibited. Apples, pears, and plums are especially fine. Experts agree that the apples raised here have no superior anywhere in the United States for size, color, symmetry, and flavor. Their natural high polish and their perfect condition make them ready sellers in every market. The absence of all pests common to apple orchards makes the lot of the orchardist here a happy one, compared with other localities where the principal part of his labor is the carrying on of an unequal fight with insects that defy all efforts to cope with them successfully. These facts make apple raising in Chaves County take rank next to the live-stock business in importance. One orchard of 500 acres is now coming into bearing and another of 250 acres is being set out. There are a number of older orchards which have been bearing for years, furnishing the product which has given the county its well-deserved reputation as a fine fruit region.

CLIMATE.

To those who have taken the pains to make intelligent inquiry, the remarkable climate of the Pecos Valley and its beneficial effect upon persons troubled with diseases of the throat or lungs, in particular, is almost too well known to call for any extended mention. The dry, pure air, the bright sunshine during the greater part of the year, the excellent chances for hunting and fishing and other diversions, make Roswell a desirable place for those who need such a climate. The great need has been a sanitarium, properly arranged, with modern conveniences, and conducted according to the best rules of practice laid down by acknowledged expert authorities who have acquired practical experience in the successful management of such institutions. This want is now to be supplied. One of the finest blocks in the town, 350 by 421 feet, beautifully situated, has just been purchased by a physician who has unlimited means at his command. He will erect a fine building with a group of cottages in connection, improve the grounds, and make the property one of the finest and most attractive in the Southwest.

RAILROADS.

The extension of the Pecos Valley and Northeastern Railway from Roswell to Amarillo, Tex., 220 miles northeast, was completed February 15, 1899, giving direct connection with Kansas City, Chicago, St. Louis, and Denver, and to this is due very largely the increase of population and investment of capital in the town and county. The machine shops, roundhouse, and the general offices are located at Roswell, and thousands of dollars are being spent by the company in improvements here, a $10,000 building for the general offices being in course of construction at this time. When the improvements shall have been completed and a full force at work in all departments, which will be soon, the pay roll will aggregate $5,000 or more each month. Roswell is the central point on the line which, together with the superior quality of the water here and the abundant supply, and the fact that the principal stockholders in the company own valuable lands close to the town, are significant reasons for centralizing the railroad company's operating forces at this point.

From February 15 to July 1, 1899, the wool shipments from Roswell reached very close to 1,000,000 pounds, while 300 cars of cattle were shipped from this point in the same time. The shipments this fall will also be very large, adding heavily to the above figures. The Pecos Valley and Northeastern will in all probability be extended soon from Pecos to Boquillas, Tex., where it will connect with the road being built from central Mexico, thus adding very greatly to the traffic of the road and to its importance. Of more importance to Roswell is the proposed line west to the coal fields and gold and silver mines of Lincoln County, to a junction with the El Paso and Northeastern Railway, and on west to some point on the Atchison, Topeka and Santa Fe line, affording a market for the alfalfa, fruits, and vegetables raised here, and making it possible to secure a supply of coal and wood at lower figures than at present.

STOCK INDUSTRY.

The stock industry is the principal industry of the county of Chaves, and has grown rapidly during the past year. The assessed valuation of the cattle in the county of Chaves for the year 1899 is $1,000,000, while the actual valuation is $4,000,000.

One hundred thousand sheep have been permanently located within the boundaries of Chaves County during the last two months in addition to 150,000 already returned for taxation. We probably have considerably over 250,000 sheep now, and will sell right here in Roswell 1,500,000 pounds of wool next spring. The high price of beef cattle and sheep has added wonderfully to the income of Chaves County, and is on the increase all the time.

THE ADDITION OF THE LOWER PENASCO COUNTRY.

This addition gives Chaves thirty-six townships, rich in grazing and agricultural lands, and containing a particularly solvent community of about 500 souls, among whom last year there was not $500 in delinquent taxes. This section is naturally tributary to Roswell, and will be of great benefit to Chaves County as a paying business adjunct.

PORTALES.

The new town and post-office of Portales is located on the Pecos Valley and Northeastern Railroad. It is located in a splendid grazing country where water is easily obtained and in large quantities; is surrounded by large cattle ranches, and promises to become a large cattle shipping point. It now has a progressive population of about 250, two good-sized general stores, a lumber yard, etc., a $3,000 schoolhouse is in process of erection, and a thriving community is promised. During the year a post-office has been established at South Spring, 5 miles south of Roswell, and at Glen, 40 miles north, besides the one at Portales, already mentioned. Chaves County also absorbed two offices in addition to the country belonging to the Lower Penasco and Elk.

POPULATION OF CHAVES COUNTY.

The county now contains about 5,000 people and is daily receiving additions. By the time the next census is taken in June it will doubtless have many more inhabitants. This is a rapid increase and is an increase which is decidedly permanent. The new people are almost all people of means and intelligence, and are of great advantage to us socially and financially.

The New Mexico Military Institute, which is fully described as to purpose, etc., in another part of this report, will bring many people to Roswell, the county seat of Chaves County, as it has already done, for the purpose of educating their children and having them receive advantages equal to those to be obtained in the East.

COLFAX COUNTY.

Colfax County, situate in the northeastern part of New Mexico immediately south of the Colorado line, is 72 miles long from east to west and 54 miles wide. It contains 2,488,320 acres, more than one-half of which is included within the boundaries of the Maxwell land grant, title to which was confirmed in 1886. During the fiscal year ending June 30, 1899, large tracts of land amounting to 200,000 acres have been sold by the grant company to individual ranchmen, farmers, and minor corporations. The land within the grant is mostly mountainous, containing large tracts of valuable timber, coal, gold, iron, and copper. The remaining land in the county is mostly undulating prairie, resembling very much the one-time prairie land of the Mississippi Valley, with a gradual slope northwest to southeast. During the past year more than one hundred families have settled on this public domain, and with their predecessors are becoming thrifty farmers and ranchmen. A large portion of the land still remains the property of the Government. The soil is rich, and a great portion of it can be irrigated from the waters of the Red, Vermejo, Cimmaron, and Rayado rivers, and many smaller streams. The altitude varies from 5,600 feet in the southeastern portion to 7,000 feet at the foothills, arising to 13,000 feet on the western boundary, which is the highest point of the Sangre de Cristo Range. The northern portion is bounded by the Raton Range of mountains, being a spur or offshoot from one of the main ranges of the Rockies. The mountains on the north and west offer a natural protection from the snowstorms and blizzards, as well as from high winds. The average mean temperature is 50° F. near the foothills, the coldest being 32° and the warmest 72°. The atmosphere is dry and no great extremes of heat or cold exist. The average rainfall is 14 to 19 inches at this altitude, but the rainfall in the mountains runs as high as 30 inches. During the winter the canyons in the mountains are filled with snow, which gradually melts during the spring and summer, furnishing a sufficient supply of water for need of irrigation.

The population of Colfax County is about 14,000, and though coming from various States of the Union, different parts of Europe and Mexico, together with the native population who remained there at the time New Mexico became part of the United States, and engaged in various pursuits of life, are yet as homogeneous a class of people as are found anywhere between the Atlantic and Pacific oceans, and are industrious, thrifty, and progressive.

In the northeastern portion of the county are the Johnson and Barela mesas, which have sufficient rainfall for all farming purposes without irrigation. On these two mesas alone nearly 40,000 acres of land are now under cultivation.

The mountain streams abound in trout, and there are still many deer, bears, turkeys, grouse, and other game to be found in the mountains.

RAILROADS.

There are two railroads within the county, the Atchison, Topeka and Santa Fe running from north to south a little east of the center, and a branch of the Colorado and Southern extending into the mountain district on the northwest corner.

CITIES.

The principal cities, towns, and villages are Raton, Gardner, Blossburg, Springer, Elizabethtown, Cimmaron, Maxwell City, and Catskill, all, with the exception of Cimmaron and Elizabethtown, being on the line of railroads, and are doing a good, thriving business.

Raton has a population of 3,800. The Atchison, Topeka and Santa Fe Railroad Company has its second largest machine shops at this point, and employs a large number of machinists. A splendid waterworks system, electric-light plant, and many costly and modern buildings have been erected recently.

Gardner is the headquarters of the Raton Coal and Coke Company, whose output of coal is from 60 to 70 cars per day, and has 76 coke ovens in operation. The coal is mined mostly by the use of electric machines. Here, also, you find a waterwork system and an electric-light plant.

Blossburg, lying within 1 mile of Gardner, was formerly the headquarters of this coal company, and considerable business is still done at this point.

Springer and Maxwell City each have good waterworks systems, and in the vicinity of each 20,000 to 30,000 acres of land has been placed under irrigation and farming has been making rapid strides at these points. At Maxwell City a modern flouring mill handles the wheat raised in the county.

Cimmaron and Elizabethtown are the two principal mining towns in the county. The latter during the past year has been making rapid strides in population and in the development of the mines surrounding it. Nearly all the mineral in the county lies within the confines of the Maxwell land-grant boundaries, but as this company offers the same inducement to prospectors and locaters as does the Government the mines are becoming rapidly developed and much mineral is now being shipped therefrom.

MINES.

The principal paying mines in the county are the Aztec, Black Horse, Montezuma, Red Bandana, Legal Tender, and Black Copper, the former having produced more than $1,000,000. Nearly all of these properties are now being worked on a paying basis. Within the past year two modern and up-to-date mills have been put into operation, one of which is a custom mill handling 40 to 60 tons per day.

Much placer mining is being done in the Ute Creek and the Moreno Valley, situate on either side of Baldy Mountain, also near Cimmaron and Bonita and Uracca canyons. Recent developments have shown that both quartz and placer mining may be carried on at a profit. It is but 25 to 50 miles from all of these mines to the line of the Atchison, Topeka and Santa Fe Railroad Company, and considerable ore is shipped to the smelters at Pueblo and Denver.

PETROLEUM.

Within the past year petroleum has been found in large quantities in the northeastern part of the county, and machinery is now being put in place for the purpose of extracting the same for market use.

LUMBER.

In the vicinity of Catskill seven sawmills are kept constantly at work and several hundred thousand feet of lumber are sawed daily, cut from the finest cedar, pine, and spruce timber.

CATTLE.

About 70,000 head of cattle are grazed within the boundaries of this county, contained in large pastures, one of which covers an area of 120,000 acres, recently purchased from the Maxwell Land Grant Company. The protection offered by the mountains on the west and east, and the dry, crisp atmosphere which cures the native grass when matured, does away with the necessity of cattle feed in the winter.

SHEEP.

One hundred thousand head of sheep are grazed on the plains both winter and summer without shelter, and seldom do their owners sustain loss by the storms of winter.

FARMING.

Considerable farming is carried on in the mountain valleys, where wheat, oats, rye, barley, and all vegetables known to the Mississippi Valley are raised in large quantities, unsurpassed in quality, and with but little cultivation. Alfalfa is the principal domestic grass, producing three cuttings each year.

Corn is grown in small quantities only, the summer nights being so cool as to prevent its maturing.

FRUIT RAISING.

Nearly all kinds of fruit grown in the temperate zone are raised at a profit, apples, pears, plums, cherries, apricots, and nectarines growing in abundance, yielding their producers larger returns than anywhere in the East. All small fruits grow with but little cultivation. The flavor of New Mexico fruit has become widely known, and that grown in Colfax County may be considered a fair average. The trees are free from blight, and the fruit grower has never had to contend with any insects which destroy the profit of the fruit grown in the East.

CEMENT.

Near the town of Springer are several stratums of cement rock, from which the Springer Cement Company produces an excellent quality of hydraulic cement and cement brick for building purposes.

ARTESIAN WATER.

Six miles southeast of Springer two artesian wells have been flowing during the past eight years. The water therefrom is bottled and shipped to distant towns and cities for medical purposes. Chemists have declared it to be the best known mineral water for dyspepsia and kidney ailments. These wells are from 150 to 200 feet deep and produce a 6-inch flow, irrigating large tracts of land.

The small expense in sinking artesian wells offers a splendid opportunity for farmers of small means who desire to farm by irrigation.

DAIRY FARMING.

Three miles east of Raton, on the Sugarite Creek, is the largest dairy farm in the county, containing 20,000 acres of land. A butter and cheese factory produces large quantities of these necessaries, which are marketed in Raton and immediate towns.

EDUCATION.

Within the county are thirty-nine school districts in which school is taught from three to ten months in each year, thus guaranteeing to every child reared within the confines of the county an opportunity for at least a good common-school education. At Raton our teachers are employed ten months in each year. Good salaries are paid, thus securing able educators, who gradually lead the mind from the lower branches to the scientific, and also teach some of the classics and modern languages. Two school buildings have heretofore been used, one containing eight rooms; but the school board during the last year, seeing the necessity of more school room, ordered a new building at an expense of $15,000, which is now in course of construction.

The teachers' institute is held at Raton, the county seat, for a period of two weeks during the latter part of August. Experienced and highly-paid educators are in attendance, thus guaranteeing to each teacher in the county an opportunity to keep in the lead with the onward march of education and general progress in the schoolroom. Each school district in the county has a splendid and commodious school building.

PLUMBAGO.

Seven miles southeast of Raton several plumbago mines have recently been opened up and are now being developed. Several miners are employed, and the plumbago is shipped to Chicago, the headquarters of the company operating the mines, where the crude material is rapidly transferred to the marketable, which is found to be equal to any of that used in the lead pencils of to-day.

DONA ANA COUNTY.

Dona Ana County is situated in the southern part of the Territory of New Mexico, between the thirty-second and thirty-third degrees of latitude and the twenty-ninth and thirtieth degrees of longitude west from Washington.

The resources of this county are mainly agricultural. It is watered by the Rio Grande, which enters Dona Ana County in its northwestern part, and flows in a southeasterly direction through the county for a distance of 100 miles. The valley of the Rio Grande in this county is on an average about 7 miles wide. Part of said valley around Las Cruces (the county seat of said county) is known as the Mesilla Valley, far famed and favorably known for its production of wheat, indian corn, alfalfa, and fine fruits, especially peaches, pears, apples, plums, and grapes, and all kinds of berries, such as strawberries, gooseberries, etc. Among the many varieties, one of the best known is the mission grape, the best-flavored grape for table use known in the civilized world. This grape was introduced into Mexico, New Mexico, and California in the eighteenth century by the pioneers of civilization, the Franciscan fathers, who were early missionaries of this country. Therefore the name "mission grape."

All the agricultural lands have to be irrigated in this arid region. The irrigation is entirely dependent on the supply of water from the Rio Grande, and owing to the canals in the northern part of this Territory and Colorado the flow of water in said river is at the present time not sufficient to irrigate said lands, or any portion thereof, successfully during the year; and until a system of storage reservoirs and canals is inaugurated the present state of affairs will continue. In all probability the Elephant Butte reservoirs and canals will be built in the near future—as soon as their legal status has been decided by the courts—and said canals will be able to furnish water to all the lands subject to irrigation in Dona Ana County.

The soil of the Rio Grande Valley is a rich alluvial soil, consisting of the decomposed matter of trees, leaves, limestone, etc., which has been carried as sediment down the Rio Grande and left in the valley by its overflows, which have occurred periodically during the past centuries.

At the present time there are irrigated and cultivated about 32,000 acres in the valley, while there are 35,000 acres more susceptible to irrigation, provided a proper canal system is established, as above stated.

Of the 35,000 acres of land now lying idle, there are about 27,000 acres situated on grants, and the remaining 8,000 acres are vacant United States Government lands, subject to the homestead and desert-land entry acts.

Donna Ana County has also about 3,000,000 acres of mountain and table lands which are used for grazing purposes, and furnish grass for horses, cattle, and sheep from one year to the other. In a few years to come, as soon as plenty of water to irrigate with has been obtained, the Rio Grande Valley in Donna Ana County will be the farmers' paradise, as, on account of the climatic conditions existing, the altitude of the valley being on an average of 3,900 feet, the farmer can work all the year round, having very near perpetual sunshine, an even climate, not too cold nor too hot, no snow nor blizzards.

ALFALFA.

This is conceded everywhere to be one of the greatest wealth producers. In this valley it is almost an universal crop. Every farmer grows more or less of it. Without exception as to years, on the 10th of May the first cutting is being harvested, and it is the expectation that three more cuttings will follow, at intervals of about five weeks. But because the citizens have been prohibited from storing the great surplus of water that flows down the Rio Grande at a season when it is not needed, the number of cuttings is sometimes reduced to two. Some farmers are growing alfalfa for market on quite a large scale. One farmer usually sells about 700 tons, besides feeding a large amount to stock. Several others do about the same, but the actual statistics are not at hand. On account of the superior grade of cured alfalfa produced here, it brings a higher price in market than that produced in many other places.

WHEAT.

Perhaps there is no other spot in the United States where wheat of the very highest grade is more certainly produced than in this valley. It knows no enemies or pests of any kind, no rust, no chinch bug, nor anything else to interfere with its growth and maturity. While it is not raised on a large scale by anyone, it is so universally grown by all farmers, large and small, for home consumption, that four flouring mills are sustained in the valley.

INDIAN CORN.

This valuable cereal grows to perfection. It is no exaggeration to say that, both for quality and quantity per acre, this valley will rival the Missouri and Wabash bottoms. Under favorable circumstances a crop of corn can be grown from the same land from which the crop of wheat has been grown in the same year.

FRUITS.

Nearly all deciduous fruits grow well, and some of them do better than in almost any other place. Among these may be named peaches, which in the Mesilla Valley are equal to the finest to be found in any part of the world, both as to size and flavor. During this season (1899) when the peach crop has been a failure in many parts of the United States, here it has been large. From one orchard over 7 full carloads of early peaches were shipped, besides the large amounts sold at retail and in smaller quantities. Apples, pears, quinces, plums, and prunes are grown in the greatest abundance and are of most excellent quality. The codling moth here, as elsewhere, is giving the apple grower some trouble, but it is hoped that some means will be found to overcome its ravages.

GRAPES.

The summer climate here seems to have a peculiar value in converting the starch of fruits into sugar. For this reason the grapes grown in this valley are thought to possess a richness of flavor seldom found in any others. Many varieties are grown, but the Mission, the Muscat, and the seedless are leading varieties for shipping purposes.

VEGETABLES.

Vegetables of nearly all kinds, except Irish potatoes, do well, and are grown in abundance for home consumption and for shipping.

Cantaloupes and watermelons are exceedingly fine and delicious. Particular notice may be made of the tomato. The raising and canning of tomatoes has become quite an industry, and the product of the Mesilla Valley canning factory brings in open market a price much higher than those produced elsewhere. Mr. Theodore Roualt is growing the present season about 300 acres of tomatoes, and expects to can and ship about 30,000 cases of same and 6,000 cases of canned green chile.

There is but one thing in the way of making this valley a "farmers' paradise"—our inability to store the waste waters of the Rio Grande.

LABOR SUPPLY.

Owing to the proximity of this county to the border of Mexico, the supply of common laborers is fully equal to the demand. Skilled artisans command fair wages, especially carpenters. During the past year or so miners have been in demand, at customary wages, and the prospects are that increasing numbers will be employed as the new mines are opened up.

PUBLIC BUILDINGS.

Las Cruces, the county seat of Donna Ana County, possesses a very pretty and commodious brick court-house, finished with stone, surrounded by beautiful grounds; a large brick schoolhouse, a large hall, and an academy conducted by the order of the Sisters of Loretto. Union Park is situated just diagonally across the street from the court-house grounds; this park has a large pavilion in the center. It is most beautifully laid out and planted with trees and flowers, which line broad avenues, and was an inception of the "Woman's Improvement Association," a club composed of the foremost ladies of the town.

The following religious denominations have church edifices here: Catholic, Methodist Episcopal, Methodist Episcopal South, Methodist mission, Presbyterian mission, and Presbyterian. About 2 miles south of Las Cruces, at Mesilla Park, are located the buildings and grounds of the New Mexico College of Agriculture and Mechanic Arts. The main building is a fine structure of two stories and a basement, consisting of thirteen rooms. Science Hall, a large two-story brick building, contains eleven large recitation rooms and five smaller ones. There is also an engineering building, girls' dormitory, seed house, and a large greenhouse, and numerous auxiliary buildings.

The college farm contains about 250 acres, all in cultivation, one-half being river-bottom lands.

SOCIAL AND INDUSTRIAL PROGRESS.

It is essential to the highest development of any community that its members have a common language. The older generation of the native people of this county, as in all other counties of the Territory, have been born under another Government, with another language, and can not be expected to speak English. However, it is an encouraging fact that by far the larger portion of our younger native-born citizens speak more or less English, and it is a further noticeable fact and truth that each succeeding generation commands a freer use of the English language.

The native people who formerly used primitive implements in their agricultural pursuits are rapidly adapting themselves to better and more modern methods.

MINES AND MINING.

In the southeast corner of New Mexico is situated the Organ Mountains. If this mineral formation was in Colorado, Montana, Idaho, or any of the Western States in which active mining and prospecting is carried on there would be to-day 5,000 men at work. Commencing at the Modoc mine, on the extreme south end of this formation, minerals in good paying quantities have been found at intervals that have extended as far as the great copper deposits of the San Andreas, 70 miles to the north. The contact of lime and granite is without a break the entire distance. The Modoc mine has been developed to a depth of 160 feet by a shaft. The ore has increased in value and worth with every foot sunk. At the bottom this vein is 15 feet wide, and 30 per cent lead ore. With lead at the present price this would be a very valuable mine if situated in Colorado. The Bennett-Stevenson mine on the same contact, about 6 miles to the north, has been a large producer since the early sixties. The production for the past year (mining what had been left behind) was in excess of $40,000. No work has been done on this mine below the water level. About 2 miles farther north the Torpedo mine is producing a carload per week of 20 per cent copper ore, the work of two miners. The Memphis, adjoining the Torpedo, has been a great producer of copper and high-grade silver ore. At present this mine is only operated to furnish water for the Bennett mill. Still, on the same contact extending to the north is the Jay Gould mine, shipping high-grade ore, copper and silver. The Merrimac, Little Buck (that produced $35,000 in silver in a few days), the Edison, Brown and Hafford, McLaughlin, Thompson, and Roualt, and other propositions all show veins of lead, copper, and silver in paying quantities when the right people come along and take hold of them. The Bear Canyon mines of Messrs. Bennett & Friedenbloom will some day be immense producers of lead and silver. At the head of St. Nicholas Canyon are found the finest indications of the existence of lead and silver ores yet to be found. The great San Andreas copper deposits are now shipping high-grade copper ores to El Paso. The Atchison, Topeka and Santa Fe Railroad contemplate putting in good roads to these mines to secure the freighting of the ores. This is truly a wonderful contact, but it needs new blood, with energy and capital. It will then give employment to thousands and add vast wealth to the Territory.

CLIMATE.

Donna Ana County, in common with the other sections of New Mexico, can lay claim to a health-giving climate; but apart from the generally favorable reputation of the Territory, as a whole, this county, embracing as it does the famous Mesilla Valley, has advantages from a climatic and public-health standpoint which are unparalleled. That modern scourge, typhoid fever, is very little known in this region, and the ordinary zymotic diseases are only occasionally seen. Among the native population tuberculosis is almost unknown, though of late years several isolated cases have come under the writer's notice.

The excellence of the health of school children is very noticeable, and is well attested by the records of attendance. As a location for the rearing of children where they may escape the various illnesses to which their age predisposes Donna Ana County can have no superior.

The climatic advantages of this section are manifold, as will be readily understood from the following condensation of the United States Experimental Station reports: During the last five years the average number of sunshiny days has been three hundred and forty-eight; the relative humidity during the winter months being 34. This maximum amount of sunshine and unprecedented atmospheric dryness, combined with the pure air which our mountain situation affords and the equability of temperature which our moderate altitude insures, makes the Mesilla Valley, the "pride of the county," an ideal health resort. In fact, it is nature's great sanitarium. These wonderful climatic conditions have been taken advantage of in the establishment of numerous resorts for the care of patients with incipient pulmonary diseases. At the present writing a sanitarium is under construction at Las Cruces which will be a model of its kind. The purpose of the company is to erect a large main building, 42 by 100 feet, two stories high, containing twenty-two great rooms, library, dining rooms, and smoking rooms; the whole to be surrounded by large verandas, with a southern exposure. Within easy access are to be erected several single-story cottages, after the style of the Saranac Lake Sanitarium. It is hoped in time to make the main building an administrative building and all invalids to be housed in the adjacent cottages, following in the lines of other institutions of similar purpose. There is under consideration two more institutions of this character.

It has given much pleasure to the writer to see this part of New Mexico attract such attention from the medical profession. At the last two meetings of the American Medical Association, held respectively at Denver, Colo., and Columbus, Ohio, the writer presented papers dealing with the climatic therapeutics of southern New Mexico, and it was very gratifying indeed to note the general favor in which they were received.

That Donna Ana County has a bright future before it nobody will deny, for it possesses many of the requisites for securing such, not the least of which is its wonderful climate, attracting as it does the best class of citizens from all parts of the universe.

THE ELEPHANT BUTTES DAM.

The greatest setback this section has ever had was that resulting from the stopping of work on what is familiarly known as the Elephant Buttes dam. A brief history follows:

A company known as the Rio Grande Irrigation and Land Company, Limited, of London, acquired the rights of the Rio Grande Dam and Irrigation Company. The object of this company was to store the overflow waters and irrigate the Rio Grande Valley in the southern part of this Territory. Of this overflow water there is an immense quantity that goes to waste every year, as there are no dams on the Rio Grande to store these waters.

The general plan of this company was to construct a mammoth dam at the Elephant Buttes, near Engle, N. Mex., and form at this point the largest storage reservoir in the world. In addition to the large dam, a series of smaller ones were to be constructed, together with canals, and by this means bring under irrigation and cultivation hundreds of thousands of acres of the most fertile land on the continent.

Work on the smaller dams and canals was commenced in November, 1896, and continued until the spring of 1897, upward of $90,000 having been expended. At this point the United States brought suit to enjoin the company from building the storage dam. Work had to be stopped, and that already done was left in such a condition as to be subjected to great damage by the annual floods. The ground for seeking the injunction was that the Rio Grande was a navigable stream.

This claim is preposterous. The Rio Grande is not and never has been a navigable stream, except where it is affected by the tide. The true secret of the attack can be found in the effort of certain persons to have constructed at El Paso an international dam, and under the impression that the Elephant Buttes dam would interfere with their plans and monopolize the water, they oppose the enterprise. A careful investigation goes to show that, instead of the Elephant Buttes dam monopolizing all the water, the reverse would be the result, and the people at and near El Paso would have more water after its construction than before.

It is to be hoped that this question will shortly be settled, and the company permitted to resume operations, for with the completion of this work will blossom forth one of the richest agricultural, fruit, and dairy sections in the West. It will outrival California, and supply the East with a superior and better quality of fruits and vegetables than can be produced in any other section of America.

The superintendent of the public schools of Donna Ana County herewith submits a report of the condition of the public school districts within the county of Donna Ana, Territory of New Mexico, for the year ending October 1, 1898.

Number of districts, 28; number of teachers, 6 male and 22 female, total, 28; enrollment of pupils, 638 males, 444 females, total, 1,082; average daily attendance, 394 males, 295 females, total, 689; number of scholars between the ages of 5 and 21 years, 1,977 males, 1,661 females, total, 3,638. Average number of months taught, 4.

RECEIPTS.

Balance October, 1897	$2,851.68
From the county school fund	5,410.80
Poll tax, fines, etc	2,861.77
Total	8,272.57

EXPENDITURES.

Teachers' wages	$5,355.11
Rent, fuel, etc	458.99
Schoolhouse and grounds	1,095.32
Total	6,909.42
On hand	4,214.83

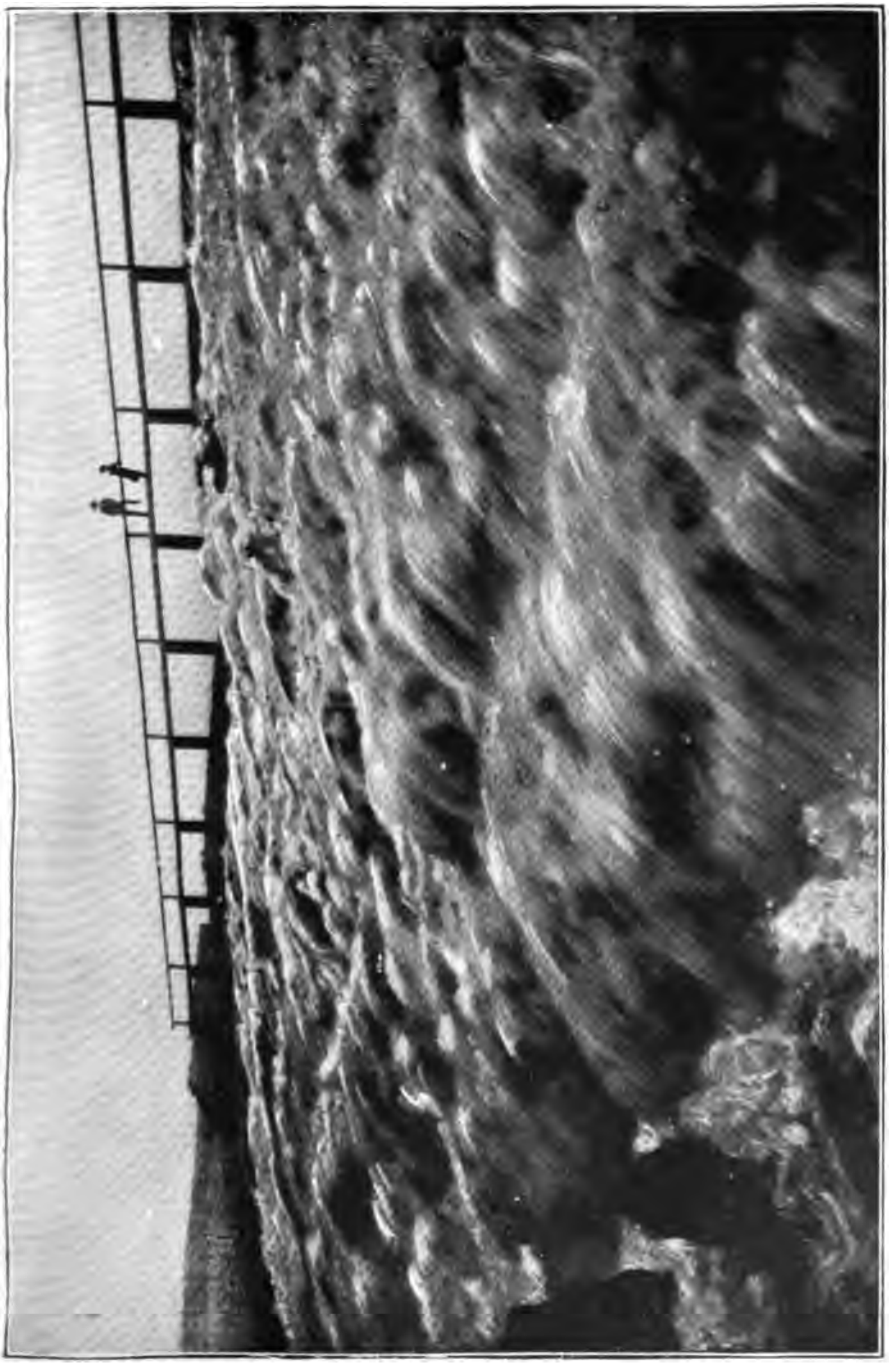
PRIVATE INSTITUTIONS.

Presbyterian Mission School: Value of property, $1,000. Enrollment of pupils—males, 45; females, 82; total, 127.

Visitation Academy: Value of property, $2,500. Enrollment of pupils—males, 39; females, 30; total, 69.

EDDY COUNTY.

The county of Eddy is fast demonstrating the fact that it contains within its boundaries all the possibilities for making it one of the greatest agricultural centers in the Southwest. That its vast irrigation system has had much to do with its present prosperity and the brilliant future that is now at its very doors, there is no manner of doubt. It was only when that system was first inaugurated that the



SPILLWAY, EDDY IRRIGATION RESERVOIR.

growth of the Pecos Valley really began, and it may truthfully be said that since that time the growth of the various industries in Eddy County has been phenomenal. It might be imagined that the one great interest that takes precedence over all others in this Western country, namely, that of cattle raising, could not be affected by irrigation. Nothing could be farther from the truth. Irrigation has brought cattle into the country by the thousand. It has concentrated the interests of their owners in their establishment of one of the largest shipping points in the Southwest at Carlsbad; it has been instrumental in making the town not only their headquarters, but also the home of many of them.

As to the live-stock industry in the county, it is estimated that during the past year it has been increased just one-third—that is to say, that the value, as well as the number of the herds and flocks, has appreciated one-third over the estimates made last year. The Pecos Valley and Northeastern Railway, the extension of which was opened for business between Roswell and Amarillo on the 24th of February last, report that during the spring they transported over their line from all points over 130,000 head of cattle. Of this immense shipment it is safe to say that at the least three-fifths originated at Carlsbad or in the territory tributary to it. Not only did the county show progress made by the number of cattle shipped, but a more valuable feature by far was made apparent—that the grade of the stock was equal, if not generally superior, to that of stock shipped from older communities south of here. This is explained by the fact that the cattlemen of the valley, having been generally successful during the past two years, have invested a large portion of their profits in the purchase of a higher breed of cattle than those of other districts. Proportionately as much fancy stock has come into Eddy County during the year as into any cattle county of Texas. Herefords are, and apparently always will be, the favorite here, and after them comes the Durham as a close second. A very conservative estimate of the number of cattle on the ranges of the county, or immediately adjoining it on the east, places the number at close to 500,000 head, in herds going from 1,000 to 60,000. When it is said that the owners of this vast number of food animals are actively breeding them up to a standard of excellence that will gain for them the very highest prices paid in the great cattle centers for choice beeves, some idea of the progress made in this one great industry alone may be arrived at.

As to the sheep industry of the county there is no doubt but that it has been nearly or quite doubled during the past year. The constantly advancing price paid for wool, the active demand from Kansas City and Chicago for alfalfa-fed lambs have had much to do with this, especially when the exceptionally fine feed for flocks is considered, and one other matter that is a powerful incentive to sheep men to bring their sheep this way, and that is the fact that so far as known this section is the only one in the entire West where there is no friction of any sort between the cattle raiser and the sheep man. The following item, taken from the American Sheep Breeder, of Chicago, sets forth in most unmistakable language reasons why southeastern New Mexico is shortly destined to become one of the greatest sheep-raising centers of America:

> The importance of the sheep-breeding industry on the Pecos River is gradually but steadily increasing. South of here, on the Rio Grande—the great dividing line between the United States and Mexico, a muddy creek, dry for most of the year, and which cost the United States $13,000,000 in 1847 to establish as a national

boundary line—there is to-day probably more sheep than in any other section of the United States of anything like the same area. From the proximity of this district to Mexico, and the facility with which sheep can be brought in from Mexico and the import duty evaded, it is very unlikely that the flocks there will ever be remarkable for anything but numbers, for although the "Dons" across the river have, for the past two or three years, been breeding up their cattle, the shipment of a well-bred lamb into the Republic is of anything but frequent occurrence. Mexican sheep to-day are practically what they were twenty years ago, or fifty, for that matter—straddling, rawboned animals, built for speed rather than for mutton. The appearance of a flock would suggest to one that it would take a dozen generations of careful breeding to bring them up to anything like the standard of the most ordinary animal seen on northern pastures.

Now this vast region, extending along the river for upward of 300 miles, and embracing within its area some six or eight of the largest counties of Texas, is virtually given up to sheep. Greaser and "Gringo" alike look for a living from their flocks, and the cattleman is decidedly in the minority. Notwithstanding all this, this district is not sought by progressive sheep men who raise sheep for mutton as well as for wool, and these men are gradually moving their flocks northward up the Pecos River into New Mexico. The advantages they derive from leaving the Rio Grande country are twofold: First, they lessen the danger of their flocks becoming mingled with the poorly bred Mexican animal, and so losing a year's labor and the expense they have been to in an effort to breed up their sheep; and next, from the fact that wild animals of the depredating sort are as plentiful on the Rio Grande now, or nearly so, as they were ten or twenty years ago. This is not to be wondered at, as sheep men are not nearly as apt to form clubs and pay scalp bounties to protect a sheep worth $1 to $1.25 as they would be if the same sheep was worth $2.50 to $3.50. Some of the stories of the depredations of coyotes, lobo wolves, panthers, and mountain lions among the flocks almost surpass belief. Whether altogether true, or only partly so, it is certain that the losses there from this source are greater than a man with a flock of even passably well-bred sheep could afford to stand. For this reason as much as for the one first named, the Pecos country is slowly filling up with a class of sheep men who mean to make the most out of their animals in a practical and businesslike way, and that, of course, means "breeding up" to a standard that makes mutton that will bring money in a market like Chicago. As a matter of fact, there are many sheep raisers, or rather woolgrowers, in northern Mexico or in extreme southern Texas, whose flocks are so particularly poor in blood that if a carload of them should be unloaded at the Union Yards in Chicago they would excite as much curiosity as so many coyotes would, and whose ultimate destination would be the soap factory. The Pecos Valley hopes in time to breed up its flocks as well as its herds, and the time is not far distant when a steer or lamb fattened on the Pecos River will carry with it a reputation similar to that which a Scotch turnip-fed steer or a Southdown commands on the London market.

The cultivation of the alfalfa clover and its prolific yield was the first product that drew attention to Eddy County. It, in fact, made it famous. The wonderful fertility of the soil, as evidenced by this one product, was so pronounced that even the attention of the Department of Agriculture was directed to the valley, and for three months of the present year this Department maintained two of its experts from its division of soils—Messrs. Means and Gardner—in this locality making exhaustive and critical tests of the different strata and noting the different products that appeared to thrive best in the various localities. Later in the summer the Department dispatched two others, attachés of the division of biology—Messrs. Higginson and Bailey—whose mission was to make an examination on the lands in the neighborhood of Carlsbad strictly with reference to their adaptability to the culture of the sugar beet. Their verdict, after a close examination, was that the sugar beet had its natural home in this county, and that the industry was as yet in its veriest infancy.

RAILROAD FACILITIES.

The completion of the Pecos Valley and Northeastern Railway to Amarillo, as noted above, now gives that road a total length of 370 miles, its southern terminus being located at Pecos City in Texas, on

Irrigated Egyptian Corn in Pecos Valley.

the Texas and Pacific Railway. It places Carlsbad within twenty-four hours' ride of Fort Worth and Dallas, Kansas City thirty hours, St. Louis forty-eight hours, and Chicago fifty-two hours. Connections are made with three trunk lines, two at Amarillo, the Atchison, Topeka and Santa Fe, and the Denver, and with the Texas and Pacific at Pecos.

THE CLIMATE.

The Territory of New Mexico has for many years been renowned for its perfect climate, its absolute freedom from all malarial complaints, and the wonderful effect it has in pulmonary diseases when not too far advanced. Men are living in Eddy County to-day who came here ten years ago to die. The equable weather, the dry and bracing atmosphere at once asserted their power and begun to heal the torn and bleeding lungs and quiet the troubled nerves. It is a climate, too, that appears to infuse new vigor both in the body and in intellect. The desire of the old Roman to have "Mans sano in corpore sano" (a sound mind in a sound body) finds its living realization on the streets of Carlsbad in the person of nearly every man that has made the valley his home for any length of time. The mean temperature of the summer is 80°, seldom exceeding that figure, and in winter 42°, while for spring and autumn it is 60°. The following from the pen of Dr. C. H. Wright, one of Carlsbad's leading physicians, verifies the above statement:

> During the last few years the medical profession has made great progress in the study of climatology as a relief and benefit to nearly all constitutional diseases. The climate of southeastern New Mexico, and especially the Pecos Valley, is rapidly becoming known as a panacea for all bronchial and lung troubles, as well as great benefit to stomach and kidney derangements. This fact is thoroughly substantiated by the multitude of cures which have been effected here in the last ten years. The Pecos Valley has been well described as the natural sanitarium of the world, and why? First, because we have all the requisites to make a complete health resort, namely, a dry air, a pure air, an air of moderate temperature, not contaminated by passing over swamps or through large cities, but coming direct from mountain ranges, and contains nothing but life-giving elements. Second, we have what but few places in this region can boast of, pure water, as well as springs containing medical properties which are a benefit to stomach and kidney troubles. Last but not least, the almost perpetual sunshine. The absence of sudden changes of temperature is one of the strong features of this section, which is a great aid in all forms of diseases or weakened conditions.
>
> During the last year the county of Eddy has had no more deaths among the residents from disease than you could count on your fingers, which speaks well for a population of over 3,000 inhabitants. Although we have had an epidemic of measles which traversed the whole county during March, April, and May, there has not been a death reported either from the disease itself or complications, which is sufficient proof that not only is the climate a benefit to chronic troubles but greatly modifies the acute infectious diseases. One coming to the valley for the first time from the north must evidence surprise at how little he suffers from the heat. We have no sultry days followed by more sultry nights. The nights are clear, cool, and refreshing. The population of Carlsbad and surrounding country is largely made up of people in search of lost health. To-day they are energetic, strong, and enjoying the best of health. These are our best advertisements. In my two years' practice here I have not seen a single case of pulmonary trouble but what was benefited by the climate, and I believe my fellow practitioners will testify likewise. The great point for physicians sending patients here for beneficial effects of this climate is not to wait too long. But all cases of pulmonary trouble will be benefited if the decided firm grip of death does not expect to claim him in a few days.

MINERAL SPRINGS.

About a mile northwest from the town of Carlsbad, on the banks of the Pecos River, is a group of springs that in times past were thought to be remarkable merely from their unparalleled flow of water, two of the largest emitting a stream at all seasons, wet or dry, of over 5,000 gallons a minute each, and the others of lesser amounts. A year or more ago, it having been noticed that the water of the larger of the two springs appeared to be strongly impregnated with minerals, it was suggested that it be analyzed. The result was that the waters were found to be almost analogous with those of the great mineral spring at Freidrickshalle, in Germany. The spring was then named Carlsbad. The rapidity with which the healing qualities of its waters became known, the almost instant relief it gave to stomach and kidney troubles that had stubbornly resisted medicine, and its effects on rheumatic complaints called so much attention to this locality that it was determined to change the name of the town, then known as Eddy, to the name of the spring, Carlsbad. This change was effected by a popular vote on the 23d day of May of the present year.

GEOGRAPHICAL SITUATION.

Eddy County lies between the thirty-second and thirty-third degrees of latitude, the two degrees forming almost exactly the northern and southern boundaries of the county. Its altitude is 3,200 feet. It extends north and south 66 miles and east and west 95, being rectangular in shape and containing about 6,300 square miles. Of this area the lands bordering on the Pecos River, extending from 3 to 10 miles on either side, are of extraordinary fertility, producing, wherever water is introduced, every cereal, vegetable, and fruit known to the temperate zone in abundance and with unfailing regularity. The balance of the land is strictly pastoral, and the nutritious grasses with which it is for the most part covered are producing now as excellent cattle as are to be found anywhere in the Territory.

THE IRRIGATION SYSTEM.

This all-important feature in the development of the country is naturally the first one about which inquiries are made by prospective immigrants or investors. Taking the irrigation system of the valley as a whole, it is beyond all question the largest in America, and the immense sums that have been expended on it make it the most complete as well. In Eddy County there are two large artificial lakes, covering a superficial area of some 10,000 acres, with a capacity of 100,000 acre-feet—that is to say, holding sufficient water to place 1 foot of water on 100,000 acres of land. There are now in active operation 40 miles of canals and main laterals, so arranged that at any time they can be extended in any direction. The main canals are from 30 to 45 feet in width, and constructed in the most substantial manner. The annual water rent imposed by the irrigation company of $1.25 per acre is said to be the smallest fee for similar service in the United States, and thus far in its history this company has never caused a dollar in loss to its customers by a failure to supply them when needed.

PRODUCTS.

It may be said that up to this time the soils of Eddy County have developed peculiar fitness for four different products, all of which they produce when properly irrigated, with regularity and in abundance. These are fruit, alfalfa, vegetables, and the sugar beet. It is to these that the county thus far has looked for its permanent and positive advancement as an agricultural center.

As to its fruits, while nearly every variety thrives and makes rapid growth, the peach produces most abundantly, and in size, flavor, and appearance it fully equals any raised in the country. The orchards are absolutely free from bugs or fruit pests, and a specked or wormy peach or apple is unknown. During the present year from the Rio Pecos orchard alone, an orchard covering but 16 acres, over 3,000 boxes of the very finest fruit will be shipped, and the demand is such for fruit from this section that not one-half of it can be satisfied.

Alfalfa produces on an average 5 tons to the acre annually, in four and sometimes five cuttings, and what might be called almost the standard price for the hay in Carlsbad is $10 a ton, with a demand that usually exceeds the supply. Many cattle feeders who this year propose fattening cattle and sheep are leasing alfalfa pasture for which they pay $5 an acre for the season. Beef and mutton fed on this sweet and nutritious clover acquire a flavor contributed by no other fodder.

Of the minor sources of revenue—that is to say, those requiring a smaller capital to start them—the raising of vegetables presents a field of profit in this country for which it would be hard to find a parallel anywhere. In the first place, there is always a large home market, and the prices obtained are always highly satisfactory to the grower. One man last season cleared $5,000 on 20 acres of celery. As to asparagus, there is just sufficient alkali in the soil to not only render the cultivation of this esculent very easy but highly profitable as well. It matures in the spring fully a month earlier than in the North or in Texas, and consequently commands a high price. Other vegetables, in fact nearly every sort, thrive in the rich river bottoms of Eddy County, and with a few acres, 5 or 10 at most, a man with a little money for seed and a few farming implements can not only make a good living the year round, as the soil can be worked to advantage here every day of the 365, but he can in a short time render himself independent of the world.

In conclusion it can be said that it takes no prophetic eye to foretell the future of this country. The evidences are at every hand, standing forth legible as the hills, clear as the noonday. Wherever the hand of man has introduced water upon these hitherto arid wastes he changes them into fertile and productive fields, rich with the fruits of the earth. He stands astounded at the result of his own handiwork. He finds that here amidst the brown hills and the sage-brush deserts of the Great West an oasis of shade and verdure has appeared, destined, like the great banyan tree of the forest, in the coming years to yield shade and fruit to wide neighborhoods of men.

GRANT COUNTY.

The past year has been one of unprecedented prosperity in Grant County. The two principal industries of the county, cattle raising and mining, have proved more than ordinarily profitable. The high prices obtaining for cattle have enabled many of the stockmen to acquire residences in the cities and towns, where they avail themselves of the greater educational facilities for their children.

In mining phenomenal success has been attained. Never in the history of any of the Western States and Territories have there been made such rapid strides in the development of the wonderful mineral resources of the West.

Taxable value of real estate.

RAILROADS.

Narrow gauge:		
30 miles main track	$75,000.00	
1 mile side track	1,500.00	
Buildings, tools, etc	4,125.00	
		$80,625.00
Southern Pacific Railroad Company		
91.30 miles main track	639,100.00	
9.07 miles side track	10,820.00	
		649,920.00
Atchison, Topeka and Santa Fe Railway Company:		
10.98 miles main track	71,370.00	
4.62 miles side track	5,544.00	
Silver City Branch:		
48.29 miles main track	217,305.00	
3.90 miles side track	4,680.00	
Silver City and Northern Branch:		
14.50 miles main track	43,500.00	
0.97 miles side track	970.00	
Buildings, tools, etc	11,020.00	
		354,389.00

TELEGRAPH LINES.

Southern Pacific Company, 91.30 miles single-wire telegraph line	$2,280.00	
Atchison, Topeka, and Santa Fe:		
4-wire telegraph line	439.20	
1-wire telegraph line	120.25	
Western Union, 90 miles, 3 wires and instruments	3,180.00	
New Mexico and Arizona Telegraph Company, 30 miles single wire	750.00	
		6,769.45
		1,091,703.45

AGRICULTURAL LANDS AND IMPROVEMENTS THEREON.

Irrigating ditches, 1½ miles	$150.00	
Grazing land value	40,270.00	
Improvements	53,520.00	
Agricultural land	80,547.00	
Improvements	107,055.00	
		281,542.00

TOWN PROPERTY.

City lots	$151,520.00	
Improvements	396,350.00	
		547,870.00

Taxable value of personal property.

Horses	$98,670.00
Mules	4,080.00
Beef and stock cattle	1,101,700.00
Sheep, graded	8,775.00
Swine	2,080.00
Burros	760.00
Wagons, carts, trucks, carriages, and vehicles of all kinds	38,720.00
Saddles, robes and blankets, harness	9,160.00
Sewing machines	9,170.00
Average value of merchandise during year ending March 1, 1899	123,410.00
Amount of capital employed in manufactures	2,000.00
Farming implements	2,910.00
Fixtures of saloon, office, or other business places	28,420.00
Money on hand	1,075.00
Books—law, medical, miscellaneous	3,710.00

Watches and clocks	$1,590.00	
Jewelry, gold and silver plate	3,985.00	
Musical instruments	5,300.00	
Household furniture	45,280.00	
Shares of stock in national or other banks	54,400.00	
Corn	450.00	
Hay	150.00	
Lumber	625.00	
Steam engines	3,500.00	
Sawmills, flouring mills (steam)	2,500.00	
Tools—carpenters', blacksmiths', etc	1,425.00	
Mines, surface improvements	84,968.00	
Mines, net product	13,800.00	
Credits—notes, book accounts, etc	1,680.00	
		$1,654,293.00
Total		3,575,408.45

The foregoing table represents but a tithe of the real value of property in Grant County. In the above estimate, taken from the assessment rolls of the county, cattle are valued at $11 per head, this value being fixed by the board of county commissioners, while the same cattle are eagerly sought by buyers at prices ranging from $16 per head for yearlings to $24 per head for full-grown stock.

The enormous values of mining property are absolutely without taxation except the improvements, as buildings, mills, etc., upon the mines. This is by reason of a Territorial law passed to encourage the development of the mineral resources of the Territory, and whereby mines are not subject to taxation until ten years after a patent for the land has been obtained from the United States Government. As few of the mines are patented, and fewer still have been patented for ten years, this great property value does not yet take a place in the taxable values of the county.

It will also be seen that the taxable valuation placed on railroads and other properties is low. Hence, while the rate of taxation may seem high to people of the East, yet it is in reality no higher than in other parts of the United States.

AGRICULTURE.

The agricultural resources of Grant County are but little developed, and yet the area under cultivation would supply an abundance of food products for the inhabitants of the county if properly managed and cared for. The principal agricultural section of the county at present is on the Mimbres River, a small stream situated in the eastern portion of the county. There are now about 20,000 acres under cultivation upon this stream which furnishes the water for irrigation.

It is proposed to build a system of storage reservoirs which will store sufficient water to irrigate 100,000 acres of the choicest land in the West, which lie just below the site chosen for the main dam. Negotiations have been completed whereby the company will acquire title to this land, and within a few months work will be commenced upon the dam and reservoirs. The land will be colonized with thrifty farmers from the East, and hundreds of thousands of dollars now sent annually from this county to Eastern States for hay, grain, poultry, eggs, butter, and other farm products will be kept at home.

The company is composed of Chicago capitalists, and is known as the Rio Mimbres Dam and Irrigation Company, with A. R. Burkdoll as resident manager. The company now has a lesser experimental irrigation system at work, and has 1,000 acres of land under cultivation. Here there is found the first producing canaigre farm in the United States. The cultivation of this crop is bound to soon prove a profitable and extensive industry, as it has been fully demonstrated that the valley of the Mimbres produces canaigre of superior quality to that grown in any other part of the world. The poorest of the many samples analyzed for the Rio Mimbres Dam and Irrigation Company gave returns of 30 per cent of tannic properties, while the canaigre tubers grown in other localities give 11 to 25 per cent of tannic values. This company has 200 acres in canaigre. As the canaigre tuber at two years' growth produces 12 tons per acre, and the product is worth $6 per ton upon the ground, when dug, it is plain that a canaigre crop is a very valuable one, and is obtained with less labor than is generally expended on other crops which give anything near as good cash returns.

There are thousands of acres upon the Mimbres producing fruit of superior quality, the peaches and apples competing successfully with those raised in the States, as, in fact, many carloads of apples especially have been shipped to the East and to Arizona. Fruit grown in the foothills of the Mimbres Mountains may have equals elsewhere, but superior it would be difficult to encounter. A fortune awaits the happy man, who, having the means, has the business foresight to erect a canning plant in that neighborhood.

On the Gila River, to the north and west of Silver City, there are about 5,000 acres under cultivation, one-fifth of which is operated by the Gila Farm Company, which, besides raising all of everything required for home consumption, produces all kinds of fruits of the finest grades obtainable anywhere. A small apiary on this farm produces 10 tons of honey annually. With storage reservoirs and dam properly constructed the area of tillable land along the Gila could be increased to 50,000 acres.

LIVE STOCK.

The cattle interests of Grant County are by no means an insignificant feature of wealth, amounting as they do to a considerable sum of money yearly to the thrifty stock grower. Grant County is by far in the lead of any other section of the Territory in this important industry. The shipments for a number of years past have been unusually heavy, that of 1898 aggregating in round numbers $1,000,000 in value. Silver City is the largest shipping point for cattle in southern New Mexico, and during the busy season the festive cow puncher is a familiar sight upon the streets. The stock yards south of the city are large, easy of access, and supplied with all the modern conveniences. Stock from all the northern and western sections of the county ship from here, as also frequent shipments from southern Socorro County. The Santa Fe system pays special attention to this large and lucrative branch of their business.

The recent rise in the prices for beef cattle has proven an incentive to stock growers, and they are consequently giving the subject of better beef their strictest attention. The stock cattle of this immediate vicinity are of a high grade, and the profits are accordingly great. Prices have been good, ranging from $16 to $18 and $22 for yearlings, twos, and threes. The ranges, both mountain and valley, are good this year, as rains have been abundant and cattle had fared well during the winter last past. Sheep and goats, of which there are quite a number in this county, have proven remunerative to their owners as food producers, while the wool and cashmere fleeces have been disposed of at fancy figures. The stockmen of this section all wear smiling countenances, and some of them diamonds. Their bank rolls have increased amazingly during the past six months, and fall sales promise to greatly add to their already plethoric purses. Cattle passed through the winter well and the calf crop this year is good. The outlook is decidedly encouraging and the stockmen accordingly in happy spirits.

Hog raising has hardly as yet become a distinctive industry, although there are several small concerns in operation in the Burro Mountains, where mast is plentiful. A few farmers along the Middle Gila who raise corn extensively and who have no immediate market for their crops put it into pork, which readily brings 5 and 6 cents per pound in Silver City.

There are a few extensive horse farms in the county, but they are mostly conducted in connection with the cattle ranches, as riding ponies are a prime necessity to the cow man and are constantly in demand to replace worn out and aged stock.

HOT SPRINGS.

There are a number of mineral springs in the county, some of which have proven to possess remarkable medicinal qualities. The celebrated Hudson Hot Spring, located about midway between Silver City and Deming, on the line of the Atchison, Topeka and Santa Fe Railroad, has already achieved a wide reputation as a health and pleasure resort. The temperature of the water registers 142° F., and is almost a sure cure for rheumatism, blood and kidney diseases, and various other complaints.

The hotel accommodations are of a superior quality, and during the summer months no more delightful pleasure resort can be found in the country.

The Gila Hot Springs, 50 miles north of Silver City, are much sought for their medicinal qualities, but the accommodations are not as good as they might be. Camping, hunting, and fishing parties to the higher Mogollon country frequently make this a stopping place, and the ladies of the party enjoy themselves here while the men folks go up into the mountains after large game, which can be found in abundance.

SILVER CITY.

The county seat of Grant County is located in a pretty mountain valley surrounded on all sides by rolling hills, which serve to protect it from high winds. The altitude is 6,021 feet above sea level; the average yearly rainfall for a period of twenty years was 14.18 inches; the mean annual temperature is 55°, the average for the summer months being 72°. On the coldest of winter nights the thermometer rarely falls lower than 12° or 15° above zero, while the days are always temperate, ranging from 45° to 70° in the middle of the day.

In summer time the thermometer ranges from 70° to 90° during the day, seldom reaching 96°, while the nights are delightfully cool, having an invigorating effect upon the system. These temperatures, taken in connection with the dryness of the atmosphere in this latitude and at such an altitude, renders it one of the most delightful climates of the world, its recuperative and health restoring properties being attested by thousands who have come from other climes to enjoy its beneficial effects.

It is a thriving and prosperous town of 3,500 inhabitants, the American element largely predominating. The population of Silver City will, in point of intelligence and education, compare favorably with that of any town of like size in the world, and it is fully equal, if not superior, to any community in the United States as a law-abiding body of citizens. Larceny, burglary, and kindred crimes are comparatively unknown, while civility and politeness mark the demeanor of all whom you meet.

It is one of the most substantially built towns in the United States, brick and stone being used exclusively—not a frame building within the city limits. There are four churches, Methodist, Episcopalian, Catholic, and Presbyterian, each of the edifices being a credit to the congregations which built them.

The educational facilities are better than in most towns of similar size in the Eastern States. The first public school in the Territory was organized here, and to-day has a very large attendance. Besides the public school, the Territorial normal school is located here. The institution is one of the best in the country, its fame as a thorough training school for teachers inducing pupils from other States and Territories to come here to complete their education and training in their chosen profession. The Sisters of Mercy conduct the Academy of Our Lady of Lourdes, where many Catholic children receive a liberal education under the beneficent care of the good Sisters.

Silver City is the supply point and distributing station for a large area of territory, which thus becomes tributary to it. It is thus rendered a very prominent mercantile as well as financial center, and a great amount of business is done by the merchants, as also an enormous volume of financial exchanges is transacted through the medium of the Silver City National Bank, a conservative banking house wherein all the most approved business methods are in vogue.

The city has a first-class waterworks system, as well as an electric-light plant of the latest improved design, each owned and operated by a private corporation. All of the most modern conveniences and luxuries of civilization are enjoyed by the residents of Silver City.

DEMING.

The second town in population and commercial importance of Grant County has 2,000 inhabitants. It is a port of entry for cattle and other imports from Mexico. It has a fine schoolhouse and a good corps of teachers, and the attendance is quite large. A very large area of cattle-raising country, extending 50 miles south to the Mexican boundary line, is tributary to this city of the plain, as also the following mining camps find here their base of supplies and mercantile center: Hachita, Volcano, Apache, Tres Hermanas, Cooks Peak, and Florida. It has two churches with comparatively large congregations, an opera house, waterworks system, with the purest water found in any town in the world, and all modern conveniences.

The town site is laid out upon one of the most attractive and desirable plateaus of the Southwest, having an altitude above sea level of 4,800 feet. Situated as it is at the junction of two great continental railways—the Atchison, Topeka and Santa Fe, and the Southern Pacific, which span the continent—and the Sierra Madre and Pacific, and the Sonora, Sinaloa and Chihuahua roads now under active construction, which will afford practical means for the development of the great industrial resources of the States of Sonora, Chihuahua, and Sinaloa, in northern Mexico, it is especially designed to offer every inducement to the various manufacturing interests of the country, the best facilities for handling the enormous amount of traffic growing out of the development of the great mineral, agricultural, and pastoral resources tributary to Deming.

Commercially considered, the location gives to the town superior advantages, and the completion of the Southern lines of railroads into the Republic of Mexico, in connection with those already established, will give to Deming the prestige of being a center of wealth, of commerce, and manufactures in a Territory whose area is an empire in extent, the resources of which embrace every known article used by civilized man.

MINES.

The mountains, which occupy fully one-fourth of the area of the county, are pregnant with all of the minerals and metals most useful to mankind. Gold and silver have been produced from the mines for a quarter of a century past, while Grant County is proud of the distinction of having the oldest copper mine in the United States—the Santa Rita del Cobre, which was worked by the Spaniards more than a century ago. Enormous veins of the richest and purest iron occur at several places, hundreds of tons of the ore being shipped daily to the iron and steel works at Pueblo, Colo., and to smelters at other points.

Ranking first among the mining facilities of Grant County should be enumerated the Silver City Reduction Works. This smelting plant, which one year ago was handling 60 tons of ore per day, has grown in capacity, as it has grown in favor with the miners of the Western States and Territories, until it now has a capacity of 240 tons per day. It draws its ore supplies from all parts of New Mexico, from Arizona, Utah, Colorado, California, and Old Mexico. This rapid progress and success is due to honest, capable, and efficient efforts of the officials in control of the concern. The works are owned by the Hearst estate, with Bev. Risque as president of the reduction company and S. E. Bretherton as general manager. It gives the miners a home market for their ores and saves the cost of transportation to distant smelters.

By the use of very recent improvements, patented by members of the company, the cost of smelting has been reduced to the minimum, and the saving thus made is shared with the miner, which in a great measure accounts for the rapid growth of the works.

SANTA RITA.

The copper mines of this district are proving to be of phenomenal richness and extent. This wonderful body of ore is without parallel in size, and the percentage of copper greater than in any large copper mine known. Geologically, it is an isolated occurrence, conforming to none of the heretofore conceived ideas of formation of ore bodies.

The area occupied by this enormous mass of ore is fully 1 mile square, the entire mass being ore which can be profitably worked, with the exception of three small vertical bands of quartzite which contain no ore. All the balance of this great mass is ore, and ore of superior quality to the average of the copper-producing mines of the world. These mines gave employment to 400 men from January until June of this year, and many thousands of tons of rich ores were extracted, many carload lots giving returns of from 60 to 75 per cent copper, while the average of all ore shipped was a fraction over 20 per cent copper. In June the property changed ownership, being purchased by Messrs. Rockefeller, Burrage, and associates for a cash consideration of $1,400,000. A corps of mining, mechanical, electrical, and civil engineers and experts are now upon the ground making plans for the erection of one of the most complete plants ever erected for the extraction of copper. It is safe to say that upon the completion of these works Santa Rita will rank among the greatest copper-mining districts of the world.

These mines are the oldest in the United States, having been worked by the Spaniards from the early part of the present century until the Territory was ceded by Mexico to the United States. Millions of pounds of copper were extracted and the metal shipped, on mules, to the City of Mexico. Two of the old forts, erected by the Spaniards for defense against Indians, are still standing, and the old dumps at the mine cover hundreds of acres, demonstrating the extent of the great excavations below. In later years the mines were worked intermittently by Americans, many of the ventures being failures on account of being harassed by the Indians, one firm losing nearly $250,000 by raids of the redskins. And thus these mines had an eventful though not always a prosperous career, until two years and a half ago when Arthur E. Dawson took charge as general manager of the property for J. Parker Whitney, of Boston. By indefatigable effort and economical management, without a dollar of capital, he put the mines on a paying basis. The dividends from the property continued to grow larger and the mines to attract more and more attention from capitalists until they finally purchased the property at the figures given above, and now it bids fair for Grant County to have at Santa Rita the greatest copper mine in the world.

PINOS ALTOS.

The old Spanish records in the custody of the Mexican Government at the city of Chihuahua tell of the discovery of gold at Pinos Altos by Gen. Pedro Almendaris, one of the early commandantes of the Mexican fortress at Santa Rita, distant 12 miles east, and where were situated the famous Santa Rita copper mines. The first discovery of gold by Americans was made on May 18, 1860, by Messrs. Birch, Shively, and Hicks. The camp was first called Birchville, in honor of Birch, who was the first to find the precious metal. Within six months 700 men were in camp looking for the gold lucre. In 1861 quartz mining was commenced, the Atlantic and Pacific lodes being located. Many other quartz veins were immediately located, the ores being reduced and the gold recovered by grinding and amalgamation in arrastres. From twenty to fifty arrastres were kept in constant operation until 1866, producing in the neighborhood of $300,000. Adding to this the gold produced from the placers, and the total of gold produced in the first five years would amount to over $500,000. Considering the crude facilities for operating the mines and the perpetual dread and uncertainty caused by frequent Indian attacks, it was a remarkably good showing. In 1866 a 15-stamp mill was erected by Virgil Marston. This, the first modern machinery in the camp, was quickly followed by other mills of the same kind, which were kept in constant operation upon the oxidized, free-milling ores from the surface of the veins. As depth upon the veins was attained the sulphureted ores were encountered, which proved a serious obstacle to the amalgamation of the gold by the processes then in vogue.

In 1883 concentration of the sulphurous ores was attempted by Messrs. Place & Johnson, but the process was a failure for lack of experienced operators. In 1884 Peter Wagner made a success of the concentration process upon the ores of the camp, and the same year Messrs. Bell & Stevens purchased and put in successful operation the Place & Johnson concentration plant, which had heretofore been pronounced a failure. From that time until last year the ores have been worked by amalgamation and concentration of the tailings, the concentrated product being shipped to the smelting works.

The several claims upon the Pacific vein which were purchased by the Hearst estate two years ago have been systematically exploited, under the superintendency of B. B. Thayer, an experienced mining engineer. Several shafts have been sunk upon these claims, one of them having attained a depth of nearly 1,000 feet below the upper workings at the apex of the hill. The ore body exposed is probably the most continuous, both vertically and laterally, that has ever been developed in any gold mine. The width of the vein varies from 6 inches to 10 feet, while the gold value will average about an ounce per ton. A pipe line has been built to bring water from the Gebhardt Springs, 8 miles away. A mill of 60 tons capacity is now in course of construction and has an assurance of a long and successful run, as more than sufficient ore to keep the mill steadily employed for five years is now blocked out and ready for extraction. It is probable that the mill capacity will soon be increased, if it be found that the water supply is sufficient. In the meantime a 10-stamp mill is working steadily upon the ore extracted in development work.

The Atlantic and Deep Down mines are being developed by Gillig & Co., of New York City, who purchased the properties from the Treasure Mining Company, a Denver corporation, that worked the property for two years at a good profit.

The Golden Giant, Rathburn, Langston, and other properties have been constant producers of gold bullion for many years and have added their share to make up the millions which the camp has produced.

HANOVER.

This camp is a mineral wonder, both as to variety of ore and extent of ore bodies. Here are found enormous veins of iron from 10 to 50 feet in thickness. From two of these mines the Colorado Fuel and Iron Company are shipping 200 tons per day, and this output will be largely increased on the completion of the railroad to the mines, which will be about October 15, 1899. Large quantities of copper ore are being shipped from the Modoc group, the Humboldt, Hanover, and numerous other mines. Manganese occurs in large quantities, and lead ores have been profitably mined here. Like its close neighbor, Santa Rita, its greatest wealth is in copper, the production of which is increasing at a rapid rate.

CENTRAL.

This district really comprises within its boundaries the mining camps of Santa Rita and Hanover, but the name is more especially applied to designate the locality immediately contiguous or within a few miles of the town of Central. Here are found several lead, silver, and gold mines. The principal mines of the district are the Texas and Grand Central, owned by the Bayard Milling and Smelting

Company, a company of Philadelphia capitalists, represented by H. Niles as resident manager. These mines have been developed to a depth of 500 feet, showing a large vein of ore rich in gold and silver and proving the permanency and value of the veins of the district in depth. A concentration mill upon the mines is being successfully operated.

OTHER MINING CAMPS.

Chloride Flat, 3 miles from Silver City, has produced over $3,000,000 in silver; even at the present depreciated price of silver several of the mines are paying well.

At Alhambra, the Alhambra mine is being worked and very rich silver ore is being extracted.

At Victoria, large bodies of high-grade lead ore have been extracted from the mine which gives its name to the camp. Wolframite, a rare and valuable mineral, is also found here.

At Stein's Pass, Granite Gap, Hachita, and Volcano rich lead and silver mines are being opened and are producing large profits.

At Gold Hill, the Reservation, Standard, Nancy Lee, and other gold mines are producing bullion.

At Paschal, in the Burro Mountains, several copper mines are being profitably worked for the higher grade ores, which are shipped to the smelters, while other very large bodies of lower grade ore are awaiting the advent of capital to erect suitable reduction works upon the ground, when these ores can be mined and copper produced at a very large profit.

The prospects for the immediate future of Grant County could not possibly be brighter. Prosperity reigns throughout the county, no boom nor excitement, but everything on a substantial and paying basis, with still greater prosperity assured from day to day as the resources of the county are developed more and more.

GUADALOUPE COUNTY.

Guadaloupe County, the banner grazing county of the Territory, with hundreds of thousands of acres of land of the very finest for settlement, offers unexcelled opportunities to the home seeker. Almost the whole eastern part of this county, embracing part of the so-called staked plains, is covered with the finest of grama grass. Water is found within a few feet of the surface, and it needs only the master hand of man to create a veritable paradise here.

As a sheep country Guadaloupe County is ahead of them all. The finest improved Merino herds are found here, and the wool produced is without doubt the finest in quality and strength of staple. Next to the sheep industry comes that of cattle, both of which are successfully carried on in this county.

The agricultural crops of Guadaloupe County are alfalfa, fruit, and cereals. Apples and pears here excel in flavor and size, being similar to fruit raised in California.

As yet little efforts have been made to develop irrigation enterprises. In this direction most excellent opportunities are offered, especially at Fort Sumner, where 12,000 acres of land could be irrigated at nominal cost.

Puerto de Luna, the county seat of Guadaloupe County, has a $20,000 court-house, several large stores, good schools, and about 1,500 people, and is the center of a fine stock and agricultural section.

The Pecos River, with its excellent ditch system, furnishes an abundant water supply to this section of great promise.

The climate is mild and the altitude is such (being about 4,000 feet above the level of the sea) that a more desirable locality can not be found anywhere for sheep and stock raising. Sheep raising has been a most important industry here, particularly with the native people. Cattle raising is fast becoming one of the principal industries, and it is meeting with much favor and success.

The mineral lands found in this section embrace gold, silver, copper, coal, and iron. Coal has been found, and is of good quality.

Oats, potatoes, barley, and timothy are chiefly grown, and the ranch houses and homes for live-stock raising are numerous. As a live-stock country this locality is specially adapted to the raising of horses.

But as a pleasure and health resort this locality has become famous. The scenic effects are grand. The country is wild and broken, and much game abounds, including bear and deer, while the streams are literally alive with mountain trout running as high as 5 pounds in weight.

Splendid pine forests cover the mountains and mesas, and the timber industry is a most important and growing one, and in the near future, with some investment of capital, Guadaloupe County will come to the front in the development of her resources.

LINCOLN COUNTY.

Lincoln County is situate in the southeastern portion of New Mexico, and embraces an area of nearly 5,000 square miles since the last division of it, when the entire southern portion of it was set off to the new county of Otero.

The general surface of Lincoln County is comparatively level, but broken here and there by detached ranges of mountains, rendering it one of the most desirable, as well as picturesque, portions of the Territory of New Mexico.

The climate of this section is an ideal one, being far enough south to avoid any very severe cold weather during the winter, and the altitude, combined with the cooling rains which almost invariably prevail through July and August, render outdoor life peculiarly delightful during the summer and fall, and make it a veritable "promised land" for the home and health seeker.

This county at present has a population of about 9,000 inhabitants and an assessed valuation of $1,608,226, or a fraction over $24.72 per capita. When we take into consideration the fact that it is almost universally conceded that the assessment rolls never represent more than 60 per cent of the actual value of the property, these figures make an extremely favorable showing as to the financial standing of the people in this county.

The principal industry thus far has been the raising of live stock. The ranges in this section are well sheltered by foothills and numerous belts of timber, and the grass is abundant and nutritious, so that stock thrive well the year round, making cattle as well as sheep raising here not only safe but highly profitable. The latest estimate, made just prior to June 1, 1899, places the number of cattle on the ranges of the county at 41,046 and their value at $451,511. This, however, can not be considered a fair showing, as most of the ranches had made their usual spring shipments prior to the time the list was made out, one firm alone having shipped 28,000 head of cattle in March previous, which was more than one-half the total estimate in June.

Of sheep there were 64,390; goats, 7,787; horses, 2,780; mules, 102. There were also 257 burros and 4,148 hogs in this county listed for taxation. Owing to the long distance from a suitable market but little attention has heretofore been given to agriculture. Only enough grain and vegetables have been raised to supply the local demand. The county now has 10,883 acres of land under cultivation, the larger portion, of course, lying along the watercourses and subject to irrigation, though in certain localities, notably along the eastern foothills of the White Mountains, a large tract has been producing abundant crops for the past five years without any moisture whatever except that retained by the soil from the winter snows and the annual rains. There can be no possible doubt that deep plowing, with subsoiling and thorough cultivation, would cause much of the land in this region, especially that contiguous to the mountain ranges, now classed as "arid," to grow most of the cereals and all kinds of vegetables at a very fair profit. No finer fruit, either in size, quality, or flavor, can be produced in any country than that gathered from the orchards around the White Mountains in Lincoln County. Now that a market has lately been opened up by the coming of the railroad, fruit raising will receive much more attention, and in a few years will form quite an item in the freight shipments to El Paso and other points.

The phenomenal success of the Coe Brothers, on the Rio Ruidosa, A. C. Austen and P. G. Peters on the Rio Bonito, Mrs. S. E. Barber on the Three Rivers, and many others throughout the county, has stimulated other ranch owners in their vicinity to plant extensive orchards with the best varieties of fruit trees adapted to the soil and climate, so that the time is not far distant when the valleys and even waste places will burst forth into a fragrant cloud of peach and apple blossoms.

Lincoln County is, perhaps, more abundantly favored by nature than any other section of equal scope in the Southwest. Aside from its vast areas of grazing and agricultural lands, which are as yet but little more than half utilized on account of an inadequate supply of surface water, its other resources are enormous. From the Gallinas Mountains on the north to the White Mountains on the south, a distance of about 80 miles, there lies a practically inexhaustible mineral belt. There is not a mountain range within its border where the precious metals, in some form, do not crop out on the surface. This fact has been well established for years, but the long distance from any line of railroad communication has prevented the development of these vast resources of wealth, as the transportation of other than gold ore was made impossible.

Only in cases where the deposits have proven to be so enormously rich that they have paid for their own exploiting from the surface down, and a dividend besides, has the work been prosecuted with any kind of system or continuity. It can be safely asserted that no mine in this whole mineral belt, with one or two exceptions, is being worked at the present time where the output of the mine itself has not paid the expense of operating and development, together with the cost of machinery for reducing the ore.

The Old Abe mine at White Oaks is an example in point. This mine is now down to the 1,200-foot level; no water has yet been encountered, neither is there any intense heat perceptible. This is probably the deepest dry mine in the United States. At this great depth the vein is less broken than near the surface and carries about the same amount of free milling ore with a large increase in the value of the refractory ore. It has always paid a handsome profit over the ordinary mining expenses when systematically and economically worked. During the past year the present management has purchased a coal mine, and put in working order for supplying the necessary fuel a 50-ton cyanide plant to work the tailings as they come from the mill, with many other improvements, and the mine has paid for them all with ore taken from development work, as but little sloping has been done.

The North and South Homestake mines in the same district are down to the depth of 1,000 feet and 600 feet, respectively, with a large amount of underground development work, and always paid a handsome dividend when properly managed.

The Lady Godiva, Little Mack, Rip Van Winkle, and many other mines in the White Oaks district, have been exploited sufficiently to show that they are of about the same character as the mines already demonstrated by deep workings.

In the Jicarilla Range, 12 miles northeast of White Oaks, the gulches are full of placer gold, estimated at several million dollars, but as yet are worked only in a crude, spasmodic way, owing to the scarcity of water, which has to be hauled several miles in order to obtain the gold by panning. This when obtained is rather coarse and almost pure. A plan is now on foot to pipe the water from the Capitan Mountains, a distance of 21 miles, in sufficient quantity to wash out this gold by hydraulic process.

In the Gallinas Mountains, still to the north, there are many fine prospects carrying copper carbonates and sulphides; also lead carbonates and galena, carrying as high as 40 per cent lead and 20 per cent silver per ton. This is comparatively virgin ground on account of the long distance from any base of supplies and the expense of shipping ore.

In the central eastern portion of the county is the El Capitan range of mountains almost entirely unprospected, although some very fine ore, carrying both copper and gold, has been located in that region.

The Nogal and White Mountain ranges, in the southern end of the county, contain a veritable network of mineral-bearing leads, much of it low grade, it is true, but in immense bodies, which, after all, are considered the more valuable in the eyes of experienced miners. Among the more productive mines in this Nogal district might be noted the American, where its original locator, Billy Gill, ground out a fortune with the aid of a mule and an arrastra; the Hellen Rae, from which old man Rae carried a gunny sack of ore down to his cabin daily and pounded out enough yellow metal in a mortar to wear a silk hat and a syndicate smile the remainder of his days, and then sold the claim to St. Louis parties for $10,000. The owners have since put in a reduction plant.

The Hopeful, generally called the Parson's mine, where a mountain of low-grade ore lies dormant because the heirs could never agree to work it themselves or fix a price on the property so that its volume of gold may be added to the whole product.

This whole vast mineral belt, which in its entirety contains almost every known mineral, is now open to the world. It never has been thoroughly prospected. The land practically belongs to the General Government, and perfect title can readily be obtained, as there is not a land grant in Lincoln County.

The building of the El Paso Northeastern Railroad into the heart of this region has stimulated all manner of enterprises more than any event in its history, and many fortunes will be made here in the next few years by those who have the courage to venture and the capital to invest.

In addition to the precious metals, there are in the vicinity of White Oaks, which is the natural business center of the county, ledges of black, gray, and white marble over a mile long. Here, as well as at the Salado and in the Jicarilla Mountains, are immense bodies of iron ore running from 50 to 70 per cent. Nature, to more especially endow this portion of the great domain, has underlaid 200 square miles of it with a vein of bituminous coal, the quality of which can not be excelled west of the Mississippi River. Openings have been made in these coal measures at White Oaks, at Salado, and at other points, sufficient to prove their quality and continuity. Inside of two months this county will be supplying El Paso and the Southwest with fuel of a very superior kind at greatly reduced rates. So cheaply can this coal be mined that at White Oaks the very best quality is being delivered to consumers at $2.75 per ton.

In the county there have been forty-three school districts already organized, and there are 1,438 children of school age.

At White Oaks is a school building which was erected at a cost of $10,000, with four rooms furnished. Nogal, Lincoln, and Picacho each have public school buildings suitable for two departments. The other districts are all supplied with school buildings of fair capacity. For the past few years much interest has been taken in educational matters throughout the county, and the per cent of illiteracy is growing rapidly less each year.

Being in direct communication with the outside world, this long isolated region will now receive a great influx of money and capital to aid in developing its unlimited resources and to uncover new mines of wealth.

As to the climate, the General Government settled that when it established a marine hospital at the Old Fort Stanton Military Reservation, near the geographical center of the county, where it proposes to test the agency of mild and pure air, tempered with the greatest amount of ozone, in the treatment of tuberculosis.

SALADO COAL FIELDS, IN LINCOLN COUNTY.

The present terminus of the El Paso and Northeastern Railroad will be Gray, a village in the center of the Salado coal fields, Lincoln County, N. Mex. Here are thousands of acres of coal, connected by a railroad to a region where coal is at a premium—the region surrounding El Paso.

As soon as the railroad became a certainty men were put to work at once in the Salado mines, and many tons of coal are now waiting the welcome whistle of the locomotive to be carried to El Paso, where the market is sure and steady.

The coal is excellent for steaming purposes, and is destined in time to be used most exclusively by the different factories and smelters in Pass City, and also in the northern and interior of the Republic of Mexico.

The railroad having now reached the coal fields, it is expected that within six months from this date more than a thousand miners will be working in the Salado district.

MORA COUNTY.

The county of Mora is bounded on the east by Union County, on the north by Colfax, on the south by San Miguel, and on the west by Rio Arriba and Taos counties. This county has an area of over 2,000 square miles, consisting of well-watered and as fertile and productive agricultural and horticultural, as well-grassed pastoral, as rich mineral, and as densely wooded timber lands as can be found in any other locality in the great Southwest.

A choice of remunerative occupation is offered to either the farmer, gardener, or stockman; or, should the home seeker prefer to prospect for mineral, or be a lumberman, he can find among the mountain ranges of the western portion of the county, on Government land, free and open to all comers, sufficient inducement for that necessary labor which accumulates wealth in bringing to light the hidden treasures of the hills or in felling the giants of the forest.

The eastern portion of this county, all public domain, is entirely devoted to stock raising. The great plains lying between Union County and Red River support numerous herds of sheep, aggregating hundreds of thousands during all the year. This immense stock range is well watered, and, with sufficient shelter afforded by the many brakes and canyons, comes near to being the stockman's ideal of what a summer and winter range should be. The grass is black gramma, well known to be the most nutritious of grasses.

From Red River westward the country is broken by cedar-clad hills and open parks and glades; is dotted with picturesque stock ranches and small farms until the lower valley of the Mora is reached at Cherry Valley, from which point to the head waters of the Mora River large tracts of land are farmed, and all under irrigation systems, yielding heavy crops of alfalfa, the principal forage plant grown. Other crops successfully raised are meadow hay, oats, wheat, corn, and, in fact, all small grains give a greater return per acre in bushels, and many more pounds to the bushel, than any of the famous wheat or corn States.

From Watrous to the western boundary line of Mora County, on all the streams and throughout all the many beautiful valleys, very large amounts of grain and hay are annually harvested. Las Vegas is yet, and has been for decades, the principal market and distributing point for all crops raised in the upper Mora and tributary valleys, as well as the receiving and distributing point for all material timbers used by the Atchison, Topeka and Santa Fe Railway and sent for hundreds of miles north and south over its line.

The town of Mora is the county seat, and is situated in the midst of extensive valleys, thickly populated with prosperous and industrious inhabitants, the visible evidence of whose labor contributes in a marked degree to the prosperity of the community at large, and with the remarkable result that not less than 40,000 wagonloads of products from farm and forest, and of merchandise, agricultural implements, etc., are exported and imported annually.

As yet railroad communication between Mora and the outside world is lacking, but recently there has been incorporated the Las Vegas, Mora and Taos Railway Company, with principal office at Las Vegas, which intends to link those towns named in its title and bring them into close connection by means of a standard-gauge electric railway, thus giving to Mora all the advantages of being practically on a transcontinental line, through Las Vegas, on the Atchison, Topeka and Santa Fe Railway, as a gateway. The early construction of this line is almost an assured fact.

The opportunities for investment in Mora County are unsurpassed in the Rocky Mountain regions. To either the large or small capitalist, the millionaire, or the "man with the hoe" there are presented openings for the safe employment of money which will, in manifold manner, repay all judicious outlays.

With the construction of the proposed railway will immediately follow the installation of immense beet-sugar refineries, canning establishments, flour and oatmeal mills, planing and saw mills, and various other important industries, raw material for which will come from the surrounding country. One item alone, i. e., pease, will furnish to a cannery over 1,000,000 pounds per annum, equal to as many cans as pounds, and of as fine a quality and delicious a flavor as any imported French pease. The Mora pea can be bought for 1 cent per pound, and it requires but little arithmetical effort to figure between the cost and profit on an article at 1 cent per pound for raw material and 25 to 30 cents per can for the merchantable product. Beans in great quantities are also grown in all the valleys of western Mora County, and they will assuredly prove an additional industry to that of canning pease, especially as the New Mexico market is now clamoring for both of them. A very heavy export business can be transacted, and both canned pease and beans will readily sell in all Eastern cities.

The La Cueva Ranch Company has successfully proven the entire suitability of the Mora Valley soil for sugar beets, and a year or two ago planted a small tract, which produced the astonishing yield of 22 tons per acre, which, on analysis made by the chief chemist at the Territorial agricultural station at Mesilla Park, N. Mex., and by the chief chemist of the Agricultural Department at Washington, D. C., showed 19.7 per cent and 19.4 per cent of saccharine matter per ton of beets. The La Cueva Ranch Company has a standing offer to supply the crop off not less than 3,000 acres of beets for a first-class refinery located anywhere in the immediate vicinity of the ranch, which would be two-thirds of the tonnage required by a 100,000-ton plant. The tonnage lacking for such establishment can be easily furnished in close proximity, and an excellent opportunity is hereby opened to large capital to come and invest.

The amount of oats annually raised in the Mora Valley alone often exceeds 10,000,000 pounds, while 2,000,000 pounds of wheat is regarded as only a moderate yield. The following is about as the crops are annually—sometimes more, sometimes a little less:

Wheat	pounds	2,500,000
Oats	do	8,000,000
Corn	do	500,000
Hay	do	2,000,000
Alfalfa	do	1,000,000
Sheep	head	100,000
Wool	pounds	500,000
Pease and beans	do	2,000,000
Lumber	square feet	2,000,000
Piles	linear feet	200,000
Railroad ties		200,000
Cattle	head	2,000
Imports of merchandise, agricultural implements, etc	pounds	4,100,000

But in this connection it is only just and right to state that the area of land actually under the plow is but a mere patch compared to the whole area of the county, which statement is necessary to explain what would otherwise appear an extreme paucity of agricultural products. There are at least 500,000 acres of rich lands lying idle and uncultivated, all of which can be put under irrigation systems in the valleys of the Mora, Rio de la Casa, Sapello, Manuelites, Cebolla, Coyote, Rito, Agua Negra rivers, and several minor streams, all of which rivers and streams carry strong heads of never-failing water.

Fruits of all the hardier varieties grow both wild and in orchards in extravagant profusion; they also offer special inducements for the establishment of preserving or canning works.

In minerals the various sorts in constant demand for smelting purposes are abundant. Some of the finest specimens of copper ore ever brought forth from the treasure vaults of the Rocky Mountains are to be obtained in western Mora County. There is also gold-bearing ore, iron, galena, and other sorts awaiting exploitation and intelligent work of the prospector and miner to show their extent.

Coal of a semianthracite character has recently been discovered in apparently inexhaustible measures, which are of sufficient thickness and of such excellence as to establish their commercial value beyond all peradventure. When railroad transportation has been provided, Mora County coal will become known all over the West as a strong competitor in "black diamonds" with any other portion of the country.

The population of Mora County is not less than 17,000 souls. Its assessed valuation is about $1,200,000, being probably only one-third of the actual value.

The altitude runs from 6,000 feet above sea level to 10,000 feet, or perhaps a little higher on the mountain peaks.

The climate is similar to the rest of the northern part or plateau land of New Mexico, and surpasses that of any other country on the face of the globe for counteracting and curing all sorts of pulmonary complaints.

The scenery in the mountains is acknowledged to be superior to the Swiss Alps by those people who have seen both.

The hunter's paradise and the fisherman's ideal for trout fishing is here to be found; the many mountain streams abound in speckled beauties, while game, both feathered and furred, small and large, roams the hills on all sides.

The home seeker can purchase lands already under cultivation for $20 per acre and upward. Farming pays when such lands will readily and constantly yield 50 bushels, or 3,000 pounds, of wheat per acre, which is now selling on the ground at 1½ cents per pound, and never less than 1 cent, with a surety of no failures in crop on account of irrigation.

Many other farm products are raised in this county, and of late years potatoes have been most successfully grown; so much so as to enter into active competition with both California and with Greeley, Colo., bulbs in the home markets.

Vegetables of almost every known variety are grown throughout all the valleys and on all the farms in Mora County. Cabbages of 40 to 50 pounds in weight, as solid and sound as can be imagined, are common results of the gardener's toil. The soil seems peculiarly well adapted to onions, carrots, parsnips, turnips, radishes, and lettuces, and garden truck of all sorts attains speedy maturity, taking the place of and driving out of local markets all importations of vegetables from better-known parts of the West, on account of the superior flavor of the home-raised article. Celery flourishes in this county; large quantities can be raised for export in addition to meeting local demand.

In natural but as yet undeveloped resources Mora County can produce a great and varied abundance. Excellent clay for brickmaking; red and white sandstone; limestone; products of the forest, white pine, red and white spruce, cedar of sufficient growth for electric, telegraph, and telephone poles, and many other trees of commercial value all grow in great quantity and of remarkable thriftiness.

There is enough timber in western Mora County to build a railroad round the earth; enough white spruce to supply a very extensive paper mill, or several of them, with raw material for years to come. There is coal in endless amount for fuel for manufactories, canneries, beet-sugar refineries, etc., and raw product sufficient to supply their demands and keep them steadily in operation from the very moment they are ready to commence.

Excellent natural wagon roads, kept in good repair, cover the county with a regular network. All means of travel and transportation are now maintained by vehicles only, except where the Atchison, Topeka and Santa Fe Railway cuts across the country from Wagon Mound to Watrous, some 40 miles of line.

There is no county in New Mexico which presents so diversified a field for the safe employment of capital in large or small sums as Mora does. Good management, abundantly aided by fertile soil, permanent water for irrigation, and intelligent farming, will produce almost incredible results. The land requires no artificial fertilizer, as the water used in irrigating attends to renewing the soil every year, or just as often as irrigation is given the lands and the crops.

To first realize and afterwards appreciate what Mora County can show and offer to the world, personal inspection and investigation are absolutely necessary, as its most fruitful portions and choicest locations lie remote from the present railway and are not seen or even heard of outside their immediate environs.

M'KINLEY COUNTY.

The legislature of 1898–99 for the Territory of New Mexico by an act created the county of McKinley out of a part of the county of Bernalillo, which new county of McKinley will embrace all that portion of the county of Bernalillo lying within the following boundaries:

On the north the south boundary line of the county of San Juan; on the east commencing at a point where the south boundary line of the county of San Juan intersects the range line between ranges 8 and 9 west of the New Mexico principal meridian; thence south between ranges 8 and 9 west of the southeast corner of township 14 north, range 9 west; thence along the west boundary line between townships 13 and 14 north, ranges 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, and 21 west, to the intersection of said line with the west boundary line of the Territory of New Mexico; thence north along the said boundary line between the Territories of New Mexico and Arizona to the point of beginning.

Although this new county has been created as above set forth, it will not be fully organized until January, 1901. Gallup will be the county seat. McKinley County is located in a rich coal-producing section of country. In fact, nearly the entire county is underlaid with coal and will undoubtedly in time be one of the richest counties and the most prosperous in the Territory, as it has numerous resources and advantages enough to make it so.

In the town of Gallup, the county seat, there are located the Crescent Mining Company, the Caledonia Mining Company, and a number of other large mining companies, employing hundreds of men. The coal mined is shipped to California, Arizona, and Old Mexico. There are also the Mulholland and Casna Mining Company, and United States Senator Clark owns and operates successfully a large mine about 5 miles west of Gallup. There are a number of other parties operating mines, the details of which will be found by reference to United States Coal Mine Inspector J. W. Fleming's report contained herein.

In addition to the immense and inexhaustible coal beds, there has also been discovered coal oil and deposits of asphalt in this county, which, however, have not as yet been developed to any great extent. This county is traversed by about 80 miles of railroad.

OTERO COUNTY.

Otero County, which was created in February of this year by an act of the thirty-third legislative assembly, has experienced a more remarkable growth than any region in the Territory since the locality came under the domination of the United States Government. The erection of this young empire is directly due to the efforts of C. B. and J. A. Eddy, railroad promoters, who induced Pennsylvania and New York capitalists to push a railway across 100 miles of barren and dust-choked plain to the Sacramento Mountains and tap a region previously devoid of market and destitute of shipping facilities, but prolific of all manner of farm products, fruit, timber, and minerals. The expenditure essential in reclaiming the locality from its primeval solitude aggregated over a million dollars, but the investment is already proving remunerative beyond the anticipations of the capitalists who furnished the money for the work.

The county is 6,912 square miles in dimension and contains 192 townships, or 4,423,680 acres. It is divided into the following classes of land: Land irrigable by artesian or pumped water, 1,228,800 acres; stock range, 2,584,320 acres; White Sands Desert, 138,240 acres. The Mescalero Apache Indian Reservation occupies 465,720 acres, or 738 square miles.

AGRICULTURE.

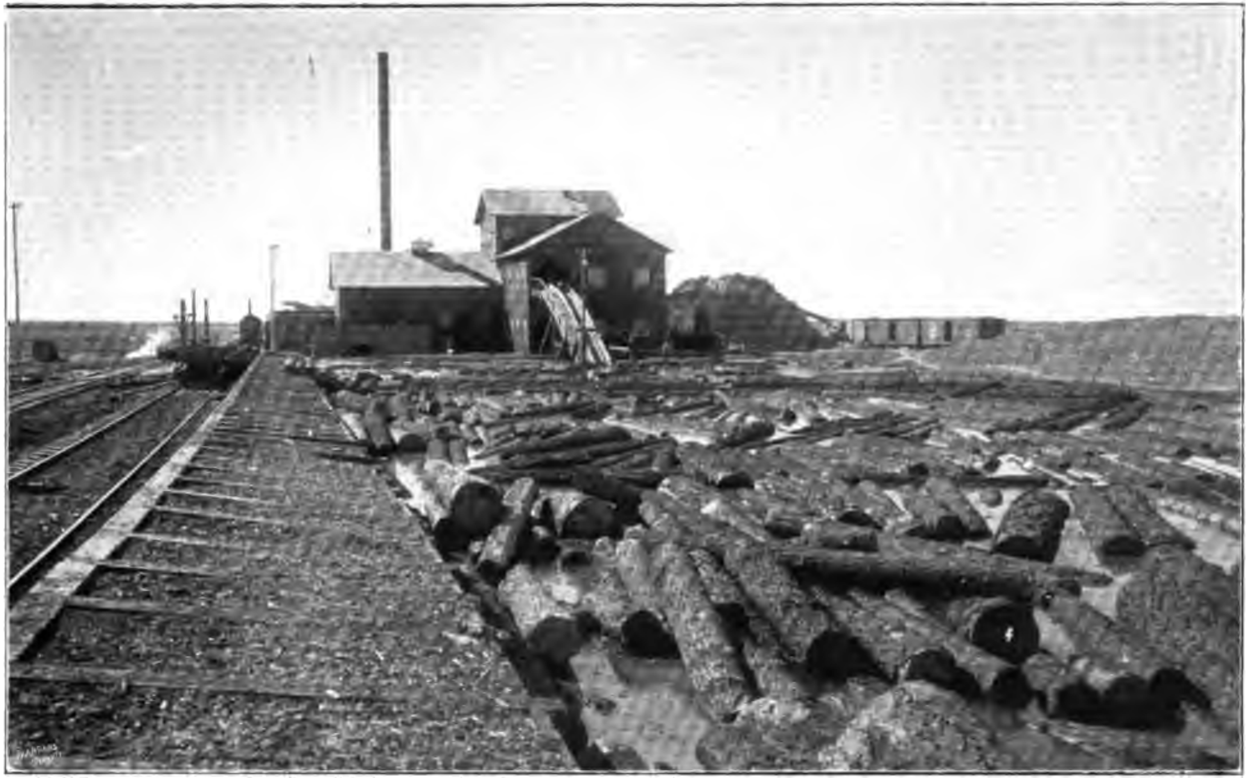
The high plateau of the Sacramento Mountains covers an area from 60 to 70 miles in length and 15 miles in width, and is a wonderfully productive agricultural country. Farmers are rapidly settling the locality, and they find a ready market in the county for all manner of farm and ranch products. Every ranchman is evidently in prosperous circumstances, for the railway has brought a market to their very doors, and the distance is so far to other markets that they have practically no competition and can command top prices for everything that they raise. The amount of land now under cultivation aggregates 1,500 acres, situated in the following portions of the county: Mescalero Indian Agency, 1,600 acres; Penasco region, 1,800; Fresnal Canyons, 1,300; Three Rivers, 800; Tularosa Canyon, 800; Sacramento River Valley, 600; Tularosa and vicinity, 400; Agua Chiquito, 400; Weed, 400; La Luz Canyon, 350; La Luz and vicinity, 200; Elk Spring Canyon, 200; Silver Spring Canyon, 150. It is estimated that there is fully 100,000 acres of fine farming land in the county that can be utilized for ranch purposes without irrigation. In the mountain region no irrigation is required except for cabbage plants and tender vegetables, which demand water before the spring rains commence. Wells are now being bored for artesian water, and when it is secured over a million acres of land in addition to that already available will be reclaimed for agriculture.

FRUIT GROWING.

The valleys and plains in the foothills and adjacent to the Sacramento Mountains furnish one of the best fruit-growing countries in the United States. There are now 23,500 fruit trees and 24,000 grape vines producing fruit in the county. The fruit trees are located in the following various places: Three Rivers, 5,000 trees; La Luz and vicinity, 8,500; Tularosa, 4,000; mountain country, 6,000. The Tularosa country has 15,000 grapevines; La Luz, 6,000, and Three Rivers, 3,000. Previous to this year there was no way of getting the fruit to market, and each season's crop was a total loss except for the small amounts required for home consumption. From time to time a few of the orchardists tried to dispose of their crops by hauling them over the rough mountain roads to Roswell, Eddy, White Oaks, Nogal, and El Paso, distances varying from 80 to 120 miles, but the cost of transportation and the time required in disposing of the fruit made the experiment unprofitable. With the railway facilities now available it will be possible to dispose of each season's crop without any difficulty, for the market embraces the whole Southwest, and the climate is such that a vast amount of fruit is required. Very few of these now engaged in fruit raising understand horticulture, but the methods employed in California and other great fruit-raising sections will come into general use here when the profits to be made in the business are realized. So far the trees here have been free from scale and destroying insects, and the total demolition of a crop by frost is unknown. There is less loss and risk attached to the fruit business in Otero County than anywhere else in the West. The fruit raised is remarkably large and luscious, and the flavor unexcelled. As an evidence of the remarkable worth of the region as a fruit-growing section, it may be well to call attention to the condition of one orchard at Three Rivers. In P. Coughlan's orchard this year the peach trees are so heavily laden with fruit that the branches of the trees are touching the ground, and in many instances have been broken. The peaches are from 3 to 6 inches in diameter, and it is estimated that this small orchard of less than 3,000 trees contains 200,000 pounds of peaches. They sell for 5 cents per pound on the El Paso market, and the crop, if marketed, would represent to him $10,000. Some of these peaches weigh as much as 19 ounces, and an exhibit at the World's Fair gained for them the premium. Apples from this orchard have been found to weigh 29 ounces. One tree contained 6,000 pounds of fruit. Marked success has attended the efforts of fruit growers in the higher mountain country, and apples do especially well there.

CATTLE GRAZING.

Otero County, with its abundance of water and 4,038 square miles of range, furnishes an ideal spot for the stock grower. There are now owned by residents of the county 39,500 head of cattle, and it is estimated that fully 50,000 head, owned by large companies having home ranches in adjoining counties, feed here. The large cow outfits that formerly occupied the range exclusively have for the most



Sawmill at Alamogordo, Otero County, N. M.

part disappeared, and the stock are now owned by numerous small stockmen, who are in a generally prosperous condition. With the price of stock advancing, the cattle industry of Otero County represents a neat figure in wealth.

SHEEP AND ANGORA GOATS.

The high table-lands and prominent foothills of the Sacramento Mountains furnish excellent pasturage for sheep and goats, and the business is being adopted by a number of newcomers in the county. There are 39,860 sheep in the county, and 12,000 Angora goats. The sheep men figure large profits from the business, and there is promise that it may become an important factor in the industries of the county. The county is such topographically that there is no danger of the sheep and cattle men coming in conflict with each other's interest.

TIMBER RESOURCES.

The timber belt of Otero County is estimated to be 20 by 80 miles in extent, containing the heaviest timber in the region from the Mescalero Indian Agency south to the headwaters of the Sacramento River, including the Toboggan, Weed, and Penasco countries. The Alamogordo Lumber Company is doing an extensive timber business in the mountains, and its operations will furnish timber for two large sawmills that are located in the town of Alamogordo. The force of men working in the woods numbers 135 at present, and it is the intention of the lumber company to double it as soon as possible. The shipments amount to 80,000 feet of timber per day, and experts state that the supply can not be exhausted in 50 years, even though the output be doubled. The extensive operations of the company furnish lumber to the El Paso and Southwestern market at a much less figure than Louisiana and Texas concerns can provide it. From Toboggan, the timber-shipping station of the lumber company, narrow-gauge railways have been run for a distance of 7 miles to the summit for facilitating the timber operations. The canyons are narrow, and hills steep, and the cost of working the timber is reduced to the minimum by the construction of slides from the top of the hills to the railway tracks below. The wages paid in the lumber country range from $2 to $3 per day. The timber averages in size from 18 inches to 2 feet in diameter, and occasionally timber is cut that is too large for the band saws of the mills to handle. One of the largest trees felled measured 6 feet 1 inch in diameter, and made ten 16-foot saw logs. Pine, white spruce, red spruce, and oak are the classes of timber most abundant. The red spruce furnishes the largest timber.

The two sawmills at Alamogordo have each capacities of 100,000 feet of lumber per day. A factory in connection with the mills is planned for the manufacture of sash, doors, blinds, moldings, and everything used in house building. The mills are equipped with the very best machinery, and every particle of the timber is utilized in the work. The slabs are worked into pickets, boxing, lath, wainscoting, etc., and the bark and sawdust are used for fuel in generating power for the mills. The construction and mechanical arrangements of the mills make it possible for them to manufacture lumber as cheaply as can be done elsewhere.

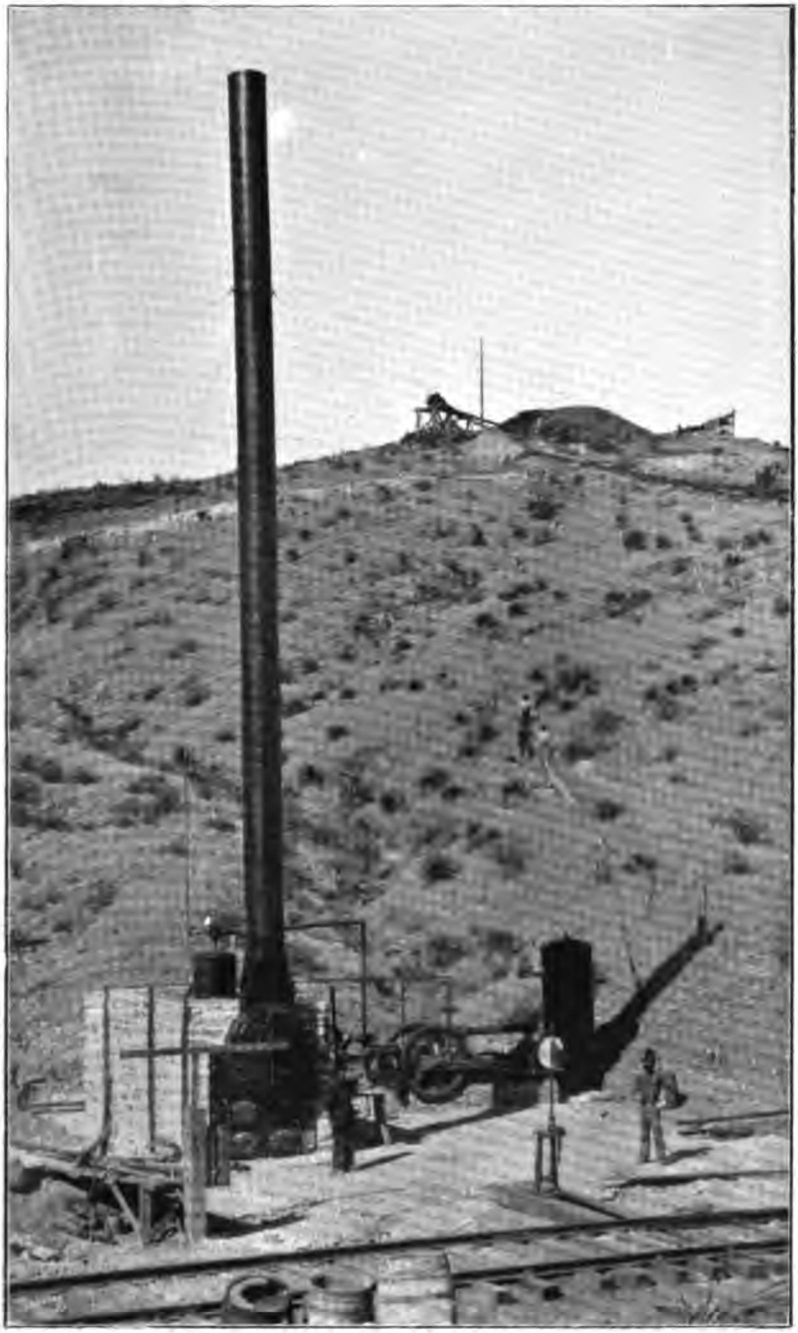
The company is now selling lumber as cheap as it can be produced in New York, Pennsylvania, and other places in the East, and cheaper than in Illinois, Iowa, and Nebraska. The quality of the lumber averages sounder, stronger, and better in every respect than Eastern lumber. The company has an investment of over $500,000 in the lumber business in Otero County.

COAL FIELDS.

The matter which first attracted the attention of the Eastern investors to Otero County and induced them to furnish an outlet by rail for its resources was the coal measures of the Salado basin, located 160 miles from El Paso. After a thorough examination of the Salado, White Oaks, and Tularosa plateau coal fields, it was decided that the best coal available was to be found at Salado. There is a great quantity of coal in the White Oaks and Tularosa sections, but the veins are thin and badly disturbed by volcanic action. In the Salado an exceptionally fine quality of coal is found and the veins are thick and the coal intact. Three seams have been opened, two of which are bituminous and coking, 55 and 62 inches thick, respectively, and a third vein of anthracite coal, 40 inches thick. The Salado basin is from 10 to 15 miles wide and the coal measures underlying it are pronounced by experts to be much more regular than the coal fields of Pennsylvania. It is estimated that there is a sufficient quantity of coal there to supply the Southwest market for at least fifty years. Heretofore, coal and coke have been brought to El Paso from distances ranging from 320 to 550 miles, but the building of the El Paso and Northeastern Railway through Otero County places the Salado field within 160 miles of the distributing point, and the haul is practically down grade all the way. The opening of the coal fields means much more than the mere furnishing of cheap fuel to El Paso, for it will also aid materially in developing the precious metals found in Otero County by furnishing mining operators with fuel at a reasonable rate.

PRECIOUS METALS.

The Jarilla mining district is now the most important mineral field in Otero County. Since the railway reached the locality development work has been carried on extensively and now heavy shipments are made from the Nannie Baird, Lucky, and other properties of lesser importance. The gold, copper, silver, and lead ore shipments from that county are of such magnitude that an Eastern company has seen fit to erect a smelter near the El Paso and Northeastern Railway tracks in El Paso, and they confidently figure on drawing their mineral supply principally from Otero County. Recently a rich placer field, 2 miles square in extent, was opened in the Jarilla Mountains, but the workings so far amount to but little on account of the scarcity of water. A number of the miners who are prospectors in the region, have ordered dry washers, and will attempt to work the field as soon as they arrive. Prospecting and development is continuing steadily in the White Mountain, Three Rivers, and Tularosa districts, and many astonishing finds have been made, but the development is not such at this time that the geological conditions of the regions can be dilated on. The railway company reports a constant increase in the ore-shipping business from the county, and positively expects the road to be one of the heaviest mineral-shipping roads in the Southwest as soon as the properties are more thoroughly developed. The railway company is assisting the development of the Jarilla district by offering a rate of $1 per ton on ores running $10 or less and then a graduate freight scale according to value of the ores.



MINING AT JARILLA, OTERO COUNTY, N. M.

THE WHITE SANDS.

The White Sands Desert, which occupies the extreme western portion of Otero County, is in reality an immense gypsum bed, which will some day form an important item in the wealth of the county. The sand hills resemble huge banks of snow, and on the west of them is found an old lake bed covering 100 square miles area, the bottom of which is composed of layers of crystallized gypsum, some of the crystals being 8 to 10 inches in length. The lake bed deposit for the most part is fibrous and sectile, like mica. The west winds have evidently blown the crystals about for many years, the friction pulverizing them and forming the huge hills on the east. In some places in the lake bed mounds of gypsum, composed of successive layers, are found 15 feet in height, which demonstrates that a bed of gypsum at least 15 feet in depth has been removed by the winds. The sand hills proper vary in size from small mounds to hills 20 feet high, and miniature mountains in ranges and isolated peaks, set off with valleys and canyons, are features of the scene, which is picturesque indeed. There is neither plant nor animal life in the center of the sands, but along the outskirts vegetation flourishes. The constant shifting of the sands kills and prevents plant life from taking root in the desert proper. Along the borders cottonwood trees are found which measure 8 inches in diameter. The soil is very moist, and it is found especially good for the growth of peppermint, large tracts of which are found growing there wild. An analysis of the sands, made at the agricultural college in Las Cruces, gave the following results:

	Per cent.
Gypsum	0.97
Calcium carbonate (lime)	2.68
Magnesium carbonate	.06
Magnesium sulphate	.12
Potassium sulphate	.07
Sodium carbonate	Trace.
Sodium chloride	Trace.

Experiments made with the sands for fertilizing purposes found it to be especially adapted to that use. The plant-growing qualities of the sands is exceptionally good. The experiments at the agricultural college demonstrated that the application of white sand in considerable quantities improved any soil a great deal. In addition to the uses mentioned above, the sands are valuable for the manufacture of plaster of paris and its various by-products. Sulphuric acid, which is largely used in leaching copper ores, can be manufactured from the sands, and with the advantages of cheap power, in consequence of cheap fuel, the great desert 20 miles west of the town of Alamogordo will some day be utilized in commerce and be found a source of great wealth.

RAILWAY ENTERPRISES.

The railway enterprises begun during the past year in Otero County include the El Paso and Northeastern, which is now 160 miles in length and still in progress of construction; the Alamogordo and Sacramento Mountain Railroad, which is completed from Alamogordo to Toboggan, a distance of 20 miles, and a narrow-gauge timber railway from Toboggan up the various canyons of the Sacramento Mountains—about 9 miles in length. The El Paso and Northeastern Railway was built for the coal business of the Salado Basin alone, but various resources never before thought of have been developed with the building of the road, and now it is enjoying a good freight and passenger business. The Alamogordo and Sacramento Mountain Railway shows some of the most intricate work of broad-gauge railway building in the United States. Maximum grades of 5.2 per cent and 30° curves are features of the road. A splendid agricultural and timber country was opened by this road, and the shipping business already demonstrates that the enterprise was justified. In all probability another railroad from Alamogordo to the White Sands, and from thence to the San Andres mining district, will be built as soon as developments in those regions warrant the move.

THE IRON INDUSTRY.

In at least a dozen places along the line of the El Paso and Northeastern Railway, in Otero County, deposits of superior ore, suitable for the manufacture of Bessemer steel, have been found. Cheap coal and coke will place the iron industry of this county on a plane with other localities, and then New Mexico, Texas, and the whole Southwest will be supplied with the home product. The iron ore has been tested at some of the largest steel works in the United States and is shown to be superior to the Colorado product. When the time arrives for the thorough exploitation of the business, New Mexico will find one of her principal industries located in this county.

SCHOOLS OF THE COUNTY.

Since the organization of the county, two different school superintendents have been appointed, but neither would undertake the work of attending to the enumeration of the children or apportionment of school funds, and the matter will not be attended to until the October meeting of the board of county commissioners. Alamogordo has a private school with an average attendance of 75, and the public schools will be established in less than two months. As an evidence of the increase in the number of children of school age in the past year, the Fresnal district (district No. 15) furnishes a startling example. Last year the enumeration of the children in that district showed 29. This year it is 225. The same ratio of increase will be found in every district that is adjacent to the railroad, and in every farming and fruit section and town. Inasmuch as there is no school superintendent to attend to this matter now, it is impossible to give accurate figures relative to the schools.

LABOR SUPPLY.

The labor supply of the county is low. Men for railroad work, timber work in the wood, lumber men for the sawmill, etc., are scarce, and several crews have been imported during the past year from Pennsylvania, Louisiana, Chicago, and other places.

CLIMATIC.

Climatically, the conditions of Otero County are very similar to those existing in other localities of a like altitude in New Mexico. The United States Government has placed the stamp of its approval on the section as desirable for tuberculosis patients by the establishment of a merchant-marine sanitarium at Fort Stanton, on the northern border of the county. The dryness of the atmosphere in the lower country and the lack of precipitation makes it especially desirable for the treatment of that disease.

Scene on the Alamogordo and Sacramento Mountain Railroad—"The Cloud Climbing Route."

ALAMOGORDO.

Alamogordo, the county seat of Otero County, has experienced the most remarkable growth of any city in the Territory. Less than a year ago the town was established, and it has to-day over 2,000 inhabitants, broad streets, an excellent assortment of splendid brick storehouses, well stocked with merchandise; three churches, two large sawmills, costing over $200,000; an electric-light plant, ice factory, a water-works system which cost $50,000, railway hospital, and commercial men's club. The general offices of the El Paso and Northeastern Railway are located here, and the company will also erect a roundhouse and machine shops at an early date. The county has the erection of a court-house in view, and fully 20 fine two-story residence houses, costing from $2,000 to $10,000, adorn the place. It is estimated that over half a million dollars has been spent in improvements in the city during the year.

WEALTH AND POPULATION.

It is difficult at this time to arrive at a correct idea of the taxable wealth of the county, for the work of the assessor has not been completed since the organization of the county, but the amount will exceed $950,000. The census rolls show a population of about 3,500, and it is constantly increasing. The El Paso and Northeastern Railway is directly responsible for the increase in population, business, and wealth of the county, for the opening of the region has given employment for almost unlimited capital, and a great amount of labor in the timber and mining regions, and has furnished homes for thousands of farmers, stockmen, and people engaged along commercial trade lines. The live-stock, agricultural, and other industries have been increased wonderfully, and the competency and energy displayed in bringing about these results is worthy of the highest commendation.

TULAROSA.

NEAR THE FOOT OF THE WHITE MOUNTAINS, AN IDEAL PLACE FOR HEALTH-SEEKERS, AND A REGION RICH IN AGRICULTURAL, FRUIT, AND MINERAL RESOURCES FOR THE HOME-SEEKER.

A climate which will effect a cure for pulmonary complaints is the one great desideratum for which persons afflicted in that respect have traveled the whole world over. It is generally conceded that a place having a mild and uniform climate, linked with the pure air of a high mountain altitude, is the place which consumptives should seek, and all of these necessary attributes are to be found in Tularosa, Otero County, N. Mex.

This little town, which is in southern New Mexico, is on latitude about 33° north, is situated at the base of the White Mountains, whose highest peak, about 25 miles distant, rises 12,000 feet high, and the town itself has an altitude of 4,000 feet above the level of the sea. It is supplied with water by the Tularosa Creek, which is a mountain stream whose sources consist of several mountain springs containing iron, magnesia, and sulphur, on the reservation of the Mescalero Indians, flowing for about 20 miles through the canyon dividing the White Mountains and the Sacramento ranges. These mountains are covered with pine, fir, juniper, pinon, and balsam fir, all of which endow the atmosphere with a healing balm beneficial to the lungs. The balsam fir furnishes a resin pleasant to the taste and much used among the mountain dwellers for coughs, sore throats, and similar complaints. The temperature ranges from the freezing point to 94° F. This is the record for eighteen years. The thermometer reaches its highest point about the middle of August, when for about two weeks it reaches 94° at noon and remains there until 3 p. m., when it begins to decline, and at night the breeze sets in from the mountains, which renders a blanket necessary before morning. The large number of old cottonwood trees which line the streets of Tularosa furnish dense shade which makes the warmest days pleasant and agreeable. The real winter weather usually lasts from about the 20th of December until the 10th of January, and then ice can be seen in the irrigating ditches from one-eighth to one-quarter of an inch thick, but never strong enough to bear a boy's weight. Tularosa being completely landlocked against the winds on the north and east by mountain ranges and spurs from the main ranges, never experiences those sudden changes of temperature which are so severe on lung troubles.

New Mexico as a fruit region has already been greatly advertised, and the fruit of all kinds raised proves her high standing for fruit culture. Tularosa does not fall behind any other portion of the Territory in the cultivation of apples, peaches, pears, apricots, nectarines, figs, grapes, and wine making from the "Mission" grapes. Apples measuring from 4 to 6 inches in diameter are raised in Tularosa.

The tourist and hunter will find many attractions in the vicinity of Tularosa. The mountain landscape and wonderful "mirage of the desert" to be often seen in Tularosa Valley, are things worth going far to see. Six hours' ride will take the hunter among the wild turkey, black-tailed deer, and cinnamon bear, and a day's drive in a buggy will take the disciple of Walton to where the speckled trout are greedily awaiting the angler's bait.

A large area of the United States public lands is still vacant in the vicinity of Tularosa. That they are rich and fertile is proven fully by the yield of all the lands under cultivation in this section. But irrigation is necessary. Turn water on the land and it will produce anything grown in the temperate zone and many of the products of the Tropics. The mountain streams furnish water in limited quantity only during the dry season, but enough goes to waste and is lost during the winter months to irrigate a country as large as the New England States if it were only stored in reservoirs, where nature has almost provided them—the mountain canyons. Movements are now on foot to effect that object. The mountain ranges near Tularosa contain large deposits of gold, silver, copper, iron, and coal yet undeveloped.

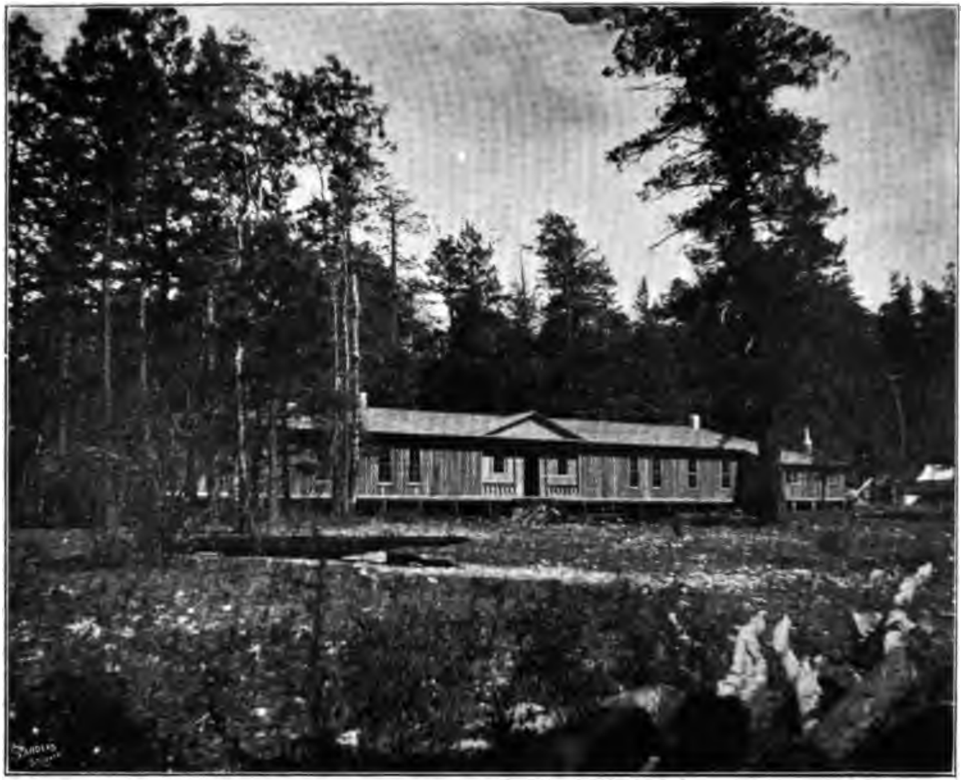
Tularosa is about 100 miles from El Paso, Tex., situated on the El Paso and Northeastern Railroad. The company is constructing a modern two-story depot, with rooms upstairs for the agent. The road is being rapidly pushed on to the Salado coal fields, in Lincoln County. These fields are extensive and a large force of men are now employed on development work. When the road is completed to this point an era of prosperity will follow all along the line, not only in the development of the coal mines, but also the gold, copper, and other minerals, which abound in the region penetrated by this road. There is also an unlimited amount of timber in this region. To those seeking for health, we say come and breathe the dry mountain air of Tularosa, charged with the life-giving ozone, and warmed by a southern sun. To the tourist and pleasure seeker we say, come and hunt the deer, the bear, the wild turkey, and fish in the mountain waters. To the capitalist, we say, come and examine the greatest opportunities for irrigation enterprises which the country affords. As a mineral and mining country, this section is coming to the front, and mining men are coming here almost daily to examine and report on mining propositions. It will only be a short time until the facilities for shipping ores will be good and claims that have not been worked heretofore will be good properties. And to the homeless one who may desire to avail himself of the United States land laws, we say that in the vicinity of Tularosa lies the largest body of unappropriated public land now left out of the almost boundless public domain, subject both to homestead and desert entries. Now is the time for the landless to take advantage of the opportunity offered.

INDIAN RESERVATION TO BE OPENED.

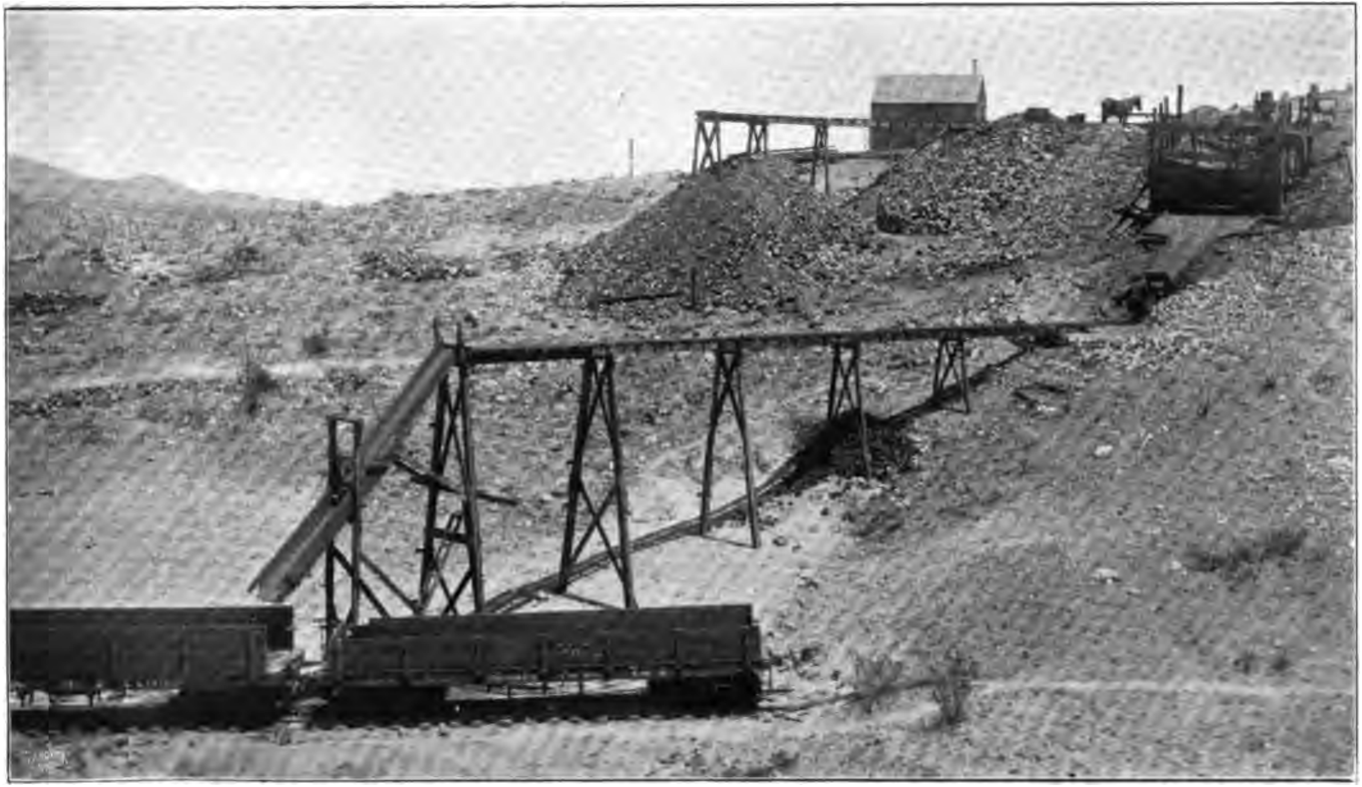
Directly tributary to the El Paso and Northeastern at Three Rivers and Tularosa is the western portion of the Mescalero Indian Reservation which will soon be thrown open for settlement. The bill to that effect has become a law, and the Indians have taken their lands in severalty, so that all that is required now is the final proceedings to its opening.

The western portion of this reservation is well known to be a rich mineral section, the value of which is greatly increased because of its proximity to the railroad. The rich agricultural country to be thrown open will be a revelation to the many hundreds of people who will seek homes there in a short time. With plenty of water and rich, fertile soil, it is destined to become the great farming area of the Southwest.

In regard to the healthfulness of the section, the Government has



PAVILLION, CLOUDCROFT, OTERO COUNTY.



NANNIE BAIRD MINE, JARILLA, OTERO COUNTY.

set its seal upon the climate by establishing a sanitarium for those of its soldiers engaged in the Navy who are afflicted with pulmonary troubles. This will be the great consumption sanitarium of the world, where, it is thought, will be received all who have become afflicted with the dread disease and who desire to try the benefits of a glorious climate combined with the best medical treatment known

LUMBER DISTRICTS OF THE SACRAMENTO MOUNTAINS IN OTERO COUNTY.

By means of the Alamogordo and Sacramento Mountain Railroad the magnificent forests of pine trees which exist in these mountains are opened up and made easy of access.

The great extent of these forests is such that, even at the present rate with which lumber is being taken from them, many years must elapse before any appreciable diminution in the supply can be detected.

In the heart of this vast forest, upon the summit of the Sacramento Mountains, is situated the noted resort of Cloudcroft, where 2,000 acres of wild woodland, replete with many surprises in the way of scenery and cozy nooks, is set apart as a park, where hundreds of tired people may find rest during the hot summer months in the cool, balmy air of the mountains.

A good dining hall upon the grounds furnishes meals to those who, while camping out, do not care to endure the heat and other vexations connected with cooking.

The Sacramentos can well be called the sportsman's paradise, as they abound in game, such as turkey, grouse, deer, bear, mountain lion, wild-cat, etc.

RIO ARRIBA COUNTY.

Rio Arriba County lies between the counties of Santa Fe, Taos, San Juan, and Bernalillo, and is bounded by the State of Colorado on the north. Its area is about 4,500,000 acres, of which over 2,000,000 are available for farming and pasturing purposes, agriculture and stock raising being the occupation of seven-tenths of the population, which, according to the last official census, is 11,534, although a recent estimate places it at 19,000.

EDUCATION.

The county of Rio Arriba has as many, if not more, public schools than any other county in the Territory of New Mexico, and all are well conducted and largely attended. There are 42 school districts, with an enrollment of over 1,283 pupils and an average attendance of 878 males and 405 females.

The principal towns of this county are Tierra Amarilla, the county seat, with a population of 2,000, a fine court-house, modern-built jail, three good stores, and a branch of the Denver and Rio Grande Railroad. The other principal towns, which are all thriving, are El Rito, Chama, and Monero, the last being a coal-mining town.

Irrigation is practiced wholly, there being no less than 40,000 acres under ditch.

There are two very extensive and exceedingly fertile valleys, the Rio Grande Valley, and the vast strip of land along the Chama River from its source to its junction with the Rio Grande, 3 miles above Espanola. These are the fruit regions of this county, and the water for irrigation of the fruit lands is furnished by the Rio Grande and Chama rivers.

MINING.

The mining industry is also carried on very extensively in Rio Arriba County. Rich galena ore has been found running $40 in silver and 30 per cent in lead within 8 miles of the Denver and Rio Grande Railroad, which railroad crosses the county of Rio Arriba in its northern part from east to west. Gold has been discovered at Tierra Amarilla in good paying quantities; copper and coal very rich has been found in the neighborhood of Abiquiu covering an area of 16,000 acres. There are now three mining districts, i. e., Good Hope, Eureka Gulch, and the Headstone, within the county, which are considered by mining experts equal in rich ores to the famous Creede district of Colorado.

VALUATIONS.

The value of property is $907,176. There are 1,550 head of cattle, valued at $13,002; 127,869 head of sheep, valued at $103,725.85; 1,082 horses, valued at $14,023, and 67 mules, valued at $1,571.

FRUITS.

Fruit of the very finest flavor is grown in this county; is free from defect and is very abundant.

SAN JUAN COUNTY.

San Juan is the northwest corner county of New Mexico, is about 75 miles square, comprises 3,542,000 acres and lies just south of the reservation, bordering its entire length. Aztec is the permanent county seat of San Juan County, and is situated in the center of the great Animas valley, flanked on either side by the fertile valleys of the San Juan and La Plata rivers. It is in the very heart of the greatest fruit belt and richest producing agricultural district in the whole Southwest. It is the central and general distributing point for the mail routes of San Juan County, and the emporium of trade and business for northwestern New Mexico. Its business and professional lines comprise three large general stores, two hotels, one hardware store, two millinery stores, one newspaper, two blacksmith shops, one livery stable, two saloons, one harness shop, one meat market, two attorneys, two physicians.

Aztec has a fine two-story brick school building and a large, commodious church building (Presbyterian). A substantial wagon bridge across the Animas River near town has recently been completed. A roller flour mill of 50 barrels' capacity daily, equipped with modern machinery and operated by a splendid water power obtained from an irrigating canal, is the latest addition to the enterprises of the town. The Territorial government has established an agricultural experimental station at Aztec and has spent about $7,000 on buildings and grounds, and the last legislature made provision for its future maintenance.

WATER SUPPLY.

San Juan County is traversed by three large rivers, which head in the snow-capped mountains of southwestern Colorado, and furnish a never-failing water supply for irrigation, under which system all successful farming is conducted. These rivers are: The San Juan, about 270 feet wide, with an average fall of 11 feet to the mile, and with a mean flow of 3,200 cubic feet per second of time; the Animas, 150 feet wide, with an average fall of 21 feet to the mile, and a mean flow of 2,000 cubic feet; and the La Plata, about 30 feet wide, with an average fall of 40 feet to the mile, and a mean flow of 250 cubic feet.

RESOURCES.

Nature has indeed done much for San Juan County. With a fine and healthful climate, it has thousands and thousands of acres of rich, level, fertile lands, and an everlasting water supply for all purposes. Large and inexhaustible fields of coal, with veins from 4 to 16 feet thick, crop out at the surface.

San Juan Vegetable Bouquet.

What makes San Juan County the finest county in New Mexico and the future great country of the Southwest is—

First. One of the finest climates on earth.

Second. Lands as rich and of as wide an extent as any country can boast,

Third. Its everlasting water supply and the ease with which it can be applied to the lands.

Fourth. The capacity of the soil to raise any kinds of crops in enormous quantities and of the finest qualities.

Fifth. The finest fruit-producing country east of California.

Sixth. The fine stock-grazing land of the higher lands and mesas and the close proximity of mountain ranges for stock in summer and the enormous crops of alfalfa hay that can be produced so cheaply for winter feed.

Seventh. The profitable production of live stock, cattle, horses, sheep, hogs, chickens, bees, etc.

COST OF HOMES.

It is estimated that not one-twentieth of the available tillable lands are yet under irrigation and cultivation. Of the lands already under irrigating ditches and subject to immediate irrigation not one-fifth is in use or cultivation. Thousands of acres of rich, fertile land, with perpetual water right, ready for use and cultivation, lying idle and unused, can be bought as raw lands with water rights at from $10 to $15 and $20 per acre, while improved lands with houses and fencing and productive orchards can be bought at from $20 to $25 and $30 per acre, owing to location and improvements. Thousands of acres of rich, level lands lying on the upper valleys and mesas, yet vacant and subject to entry under the public-land laws, can be irrigated with larger canals and ditches to carry the water.

PRODUCTS.

Entering the Animas Valley, in San Juan County, after leaving the Ute Reservation, the visitor sees well-irrigated ranches, with bearing orchards and alfalfa and grain fields of unsurpassed productiveness. Alfalfa yields three and in some cases even four crops per year, and, in addition, furnishes pasturage throughout the winter. Wheat, oats, barley, rye, potatoes, and sugar beets yield as well as in the other most favored regions. Small fruits of all kinds do well, the grape is much more prolific than in the famous California vineyards, while orchard fruits are of superlative quality. The large, sweet cherries commonly sold throughout the country as California cherries thrive here. The pear here finds its most congenial home. The apricot, almond, nectarine, and peach grow to perfection, and the apple, king of fruits, is beyond compare. Almost every farm on down from the reservation line throughout the county has its orchard. The older orchards produced 15,000,000 pounds of apples in 1898, and the quality of the fruit has established for it a recognized place in the great markets of the country. Pear blight, grape rot, apple scab, and the many other enemies and afflictions of fruit culture in the States of the Union are as yet unknown in this favored section.

The pasturage and water supply of the high mesas in the mountains north are ample for the summer range of vast herds and flocks, which in winter are fed on the valley farms. The sheep and cattle interests are already very extensive and are destined to form the basis of the agricultural wealth of the county.

THE OTHER TOWNS.

This article would be incomplete were not some mention, however brief, made of the many other towns and settlements of the county, possessing, as they do, innumerable attractions and a future pregnant with untold possibilities. Chief among these is Farmington. The fame of Farmington as a great fruit-producing center is widespread. The town is situated at the junction of the three rivers, the San Juan, La Plata, and Animas. It has several hundred inhabitants and is constantly and rapidly growing. The oldest orchards in the county are located near here. The soil is rich, the improvements many and substantial, and the people progressive to a degree.

Fruitland, Jewett, and Olio are numbered among the growing towns along the lower San Juan River. They are highly thrifty and prosperous and deserve a visit from the intending settler. Cedar Hill, on the Animas near the State line; Flora Vista, also on the Animas, 7 miles below Aztec; Bloomfield and Largo, on the San Juan, and the La Plata settlement along the productive and progressive valley of the La Plata River, complete the list of San Juan's embryo cities.

A WORD TO THE HOME SEEKER.

When you visit the opening of the reservation you may not get what you want. You will find some of the choice land already allotted. You may find other active, energetic people just ahead of you and the most favorable locations gobbled up by the most fortunate land seekers in the scramble for choice locations, but do not get discouraged. You have come to the Southwest to fully investigate. You want to change locations; you may have weak lungs or throat trouble or be suffering from catarrh or rheumatism; you are perhaps from the slow, go-easy, overcrowded East, and you are wanting a vacation among the strange and diversified scenes of the great West; you want a home of your own with rich soil and plenty of water, and one that will produce anything that grows; and you want a change of climate from the hot, sultry summers of the Eastern and Middle States and from the cold, long winters with their many grievances. Do not get discouraged because you may not get what you want on the reservation. It may not suit you: there may be too much mountain and too little valley. Come right on down across the reservation into San Juan County, N. Mex. Come to Aztec, 38 miles south of Durango, where the Animas River basin widens out into a beautiful broad valley with thousands of acres of the most fertile lands. Remember that it is only 10 miles from Aztec across to the great valley of the San Juan River and only 12 miles across west to the beautiful valley of the La Plata. Remember that while we are only 38 miles south of Durango, we are entirely out of the mountains, among the foothills, and in the broad valleys, and more than 1,000 feet lower in altitude.

There is nothing on the reservation that beats our country. We have better land and more of it. We have more water and it is easier handled to irrigate with. We have all the building stone and all the coal and fuel we need. We have a much lower altitude and a better climate. We have big orchards that have been tried and are found fruitful. We have good schools and churches, good society and good people. We have plenty of cheap lands that can be bought on long time at a low rate of interest, and we have just started a great big empire that has more rich natural resources than any other tract of land of its size in the United States. We want more good, industrious people to help us develop its many rich resources and make homes that mean both independence and fortune in the future in the growth and prosperity of this favored country. Do not get discouraged if others are ahead of you in the reservation. Just beyond is the promised land. Just over the border is the famous San Juan. Just down the river is the great Animas Valley that offers the finest homes in the finest climate for the least money, with the best surroundings of any locality in all the great Rocky Mountain region.

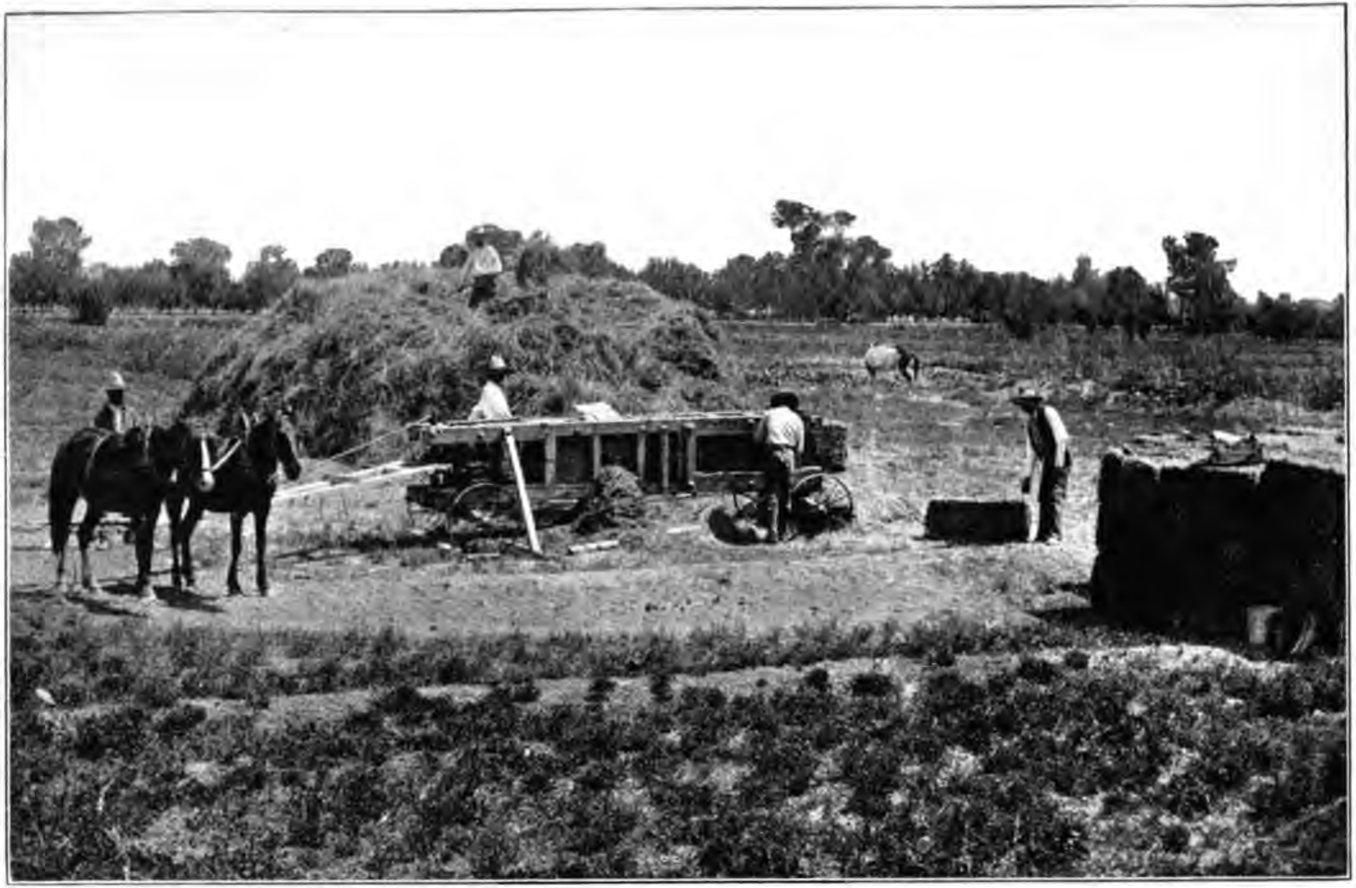
SAN MIGUEL COUNTY.

San Miguel County is larger than the State of Massachusetts and has a population half as large as the State of Wyoming. The topography of the county is made up of mountains in the west part, fertile valleys, and broad plateaus, called mesas, in the central and east. It has every diversity of climate, soil, and scenery, and the great diversity of the staple industries is an ample guaranty of the permanent prosperity of all. Here we have mountain, plain, and valley, the basic conditions best adapted to varied and profitable human energy; mines, cattle, and agriculture, three of the great basic industries of the world all combined, constituting an aggregation of producing industries that underlie and are essential to the successful prosecution of all others.

The Rocky Mountain range, which lies across the west end of the county from north to south, is ribbed with gold, silver, iron, copper, lead, and coal, and yet lacking everywhere of being at all generally exploited.

The great plains which lie between the mountain slopes and the valleys of the streams that cut the county in every section are covered with nutritious grasses and are well supplied with water, and are thus made capable of sustaining vast herds of cattle, sheep, and horses. Many of the valleys are limited, it is true, but practically each of them is of sufficient area to accommodate a neighborhood of farms and capable, with intelligent storage, of supplying all with water for all purposes.

The greatest of all needs of San Miguel County is farmers. Of merchants, lawyers, doctors, politicians, middlemen, statesmen, etc., the supply is fully equal to the present demand; but the farmer, the basis of development and the foundation stone and superstructure of all public prosperity, individual, local, State, and national—the man who tills the soil in rational, intelligent, and successful ways—is the man needed here.



BALING ALFALFA IN SAN JUAN COUNTY.

The native population of this county are natural sheep men and cattle men, and devote all their attention to these profitable industries. In many instances they have their homes located in rich valleys capable of producing large and paying crops, but at the same time import their corn and flour from the Middle States. In San Miguel County there are valleys with ample water, if intelligently used, to supply with wheat, oats, corn, and hay a population of 200,000 people, yet for a lack of farmers there are on an average of twelve carloads of flour, three of corn, and five of oats shipped into this county per month the year around. This is a natural result of the conditions of our industries. The cattle and sheep men are not producers of hay, grain, and fruits, nor do they even raise garden truck, but they buy oats by the ton, and they buy bacon, garden products, and fruit. The miners who delve for coal, copper, silver, and gold are many, and they buy imported products at good prices.

Our prices for grain, etc., are Kansas prices with freight added. For instance, if oats can be laid down here from Kansas or Nebraska, or anywhere east, at $1 per 100 pounds, $1 per 100 pounds is the price of our oats. So our farmers get the Eastern price with a very high freight rate added, and thus our grain, our garden and dairy products are better paying than they are in the Eastern States, and our market is at home. I am unable to obtain statistics of the amount of poultry and dairy products imported into New Mexico each month or year, but the amount is enormous, and I think it is perfectly safe to say that nine-tenths of the poultry, eggs, and butter used in New Mexico comes into the Territory by express, and this is for the sole reason that we have not in this country the farmers or small ranchmen to supply us with these necessities, a golden opportunity it would seem for thrifty Americans who desire to come West and locate in the finest climate on earth.

San Miguel County is the center of the two great industries in New Mexico, cattle and sheep raising. Of the 20,000,000 pounds of wool produced annually in New Mexico, 4,000,000 pounds are grown and 8,000,000 pounds are marketed in San Miguel County. This county is also the headquarters of a majority of the cattle men of the Territory. In Las Vegas, the county seat of this county, are located three large wool-scouring plants, each with a capacity of 2,500,000 pounds of wool per year. This home demand for wool is the secret of the good market of this product in Las Vegas.

The Atchison, Topeka and Santa Fe Railroad has 100 miles of track in San Miguel County, and the division headquarters is located in Las Vegas, where the monthly pay roll exceeds $30,000. This road has also a branch line running from Las Vegas to the Las Vegas Hot Springs, where upward of $1,000,000 have been spent in hotels, bath houses, and other improvements. It is here that the celebrated Montezuma Hotel is located, said to be the finest resort hotel between Chicago and San Francisco.

San Miguel County is known as the empire county of New Mexico. No combination of circumstances has yet been found powerful enough to direct the wholesale trade of the Territory from its natural center—Las Vegas. The largest wholesale houses in the southwest are located here, while having branches at Albuquerque, Socorro, and other points. Trade for Las Vegas comes by rail and wagon. It comes from the counties of Mora, Colfax, Taos, Santa Fe, Chaves, Lincoln, Valencia, and Socorro, there being more freight unloaded in Las Vegas and more loaded out than in any other city in New Mexico. This is certainly a good and true index of the business done.

Las Vegas, the county seat of San Miguel County and the commercial center of the Territory, has a population of 10,000 people, about equally divided between natives and Americans. In the way of public buildings it has a city hall, five public-school buildings, court-house, Masonic temple, opera house, Territorial normal school, Territorial insane asylum (of red and white cut sandstone), an academy, seminary, Jesuit college, convent school, Presbyterian mission school, Methodist manual-training school, Christian Brothers' institute, and a kindergarten. Two schools of music are also added to her educational facilities.

Las Vegas has two daily and five weekly newspapers, three banks, two building and loan associations, three hotels and many boarding houses, nine churches, a number of clubs, and all the leading civic and social societies, a roller flour mill, capacity, 50 barrels a day; a manufactory of mineral and carbonated waters, two wagon and carriage factories, a saddle and harness factory, electric-light plant, three planing mills, two cigar manufactories, and many other enterprises of less importance.

There are eight wholesale houses, whose trade extends throughout the Territory, while this volume of trade and the value of stocks they carry can not be duplicated west of Kansas City and south of Denver.

An evidence of the healthy growth of Las Vegas can be had from the fact that not less than fifteen new commercial enterprises have been opened here in the past six months.

Respectfully yours,

W. C. REID.

Hon. MIGUEL A. OTERO,
Governor of New Mexico, Santa Fe, N. Mex.

CLIMATOTHERAPY AT LAS VEGAS HOT SPRINGS.

A remarkable combination of natural advantages of a health-giving nature exists in and about Las Vegas Hot Springs. Its location in this regard is peculiar. Situated in the northern portion of the county, it lies on the southern slope of the Canadian Valley, the course of whose waters, differing from that of either of the other valleys of the Territory, is directed toward the Mississippi. The main range of the Rockies forms the western boundary of this valley. A limb of the Rockies extends at about right angles east and west along the Colorado and New Mexico boundary line. The Raton Range is a part of this limb, some peaks of which are 8,000 feet in height. This high western and northern barrier protects the valley in question from the severe storms which arise in the great Northwest, and hence materially modifies the climate which exists within this basin. The protection of Las Vegas Hot Springs is also materially enhanced by the fact that it lies at the western entrance of the Gallinas Canyon, the high hills of the latter forming almost a complete circle about it. The range of hills forming this canyon farther west become mountains of considerable magnitude. All are covered with a heavy growth of yellow pine, pinon, and cedar trees, together with minor vegetation. There is no sufficient dust or sand upon these hills and mountains in condition to be disturbed by winds; hence, at Las Vegas Hot Springs sandstorms are unknown. Its distance from any center of population is such that it is undisturbed by the dust of streets. Through the Gallinas Canyon flows a small river by the same name, and in its immediate vicinity, close to the edge of the stream above referred to, within a confined area, the soil is penetrated from an unknown depth by some thirty hot mineral springs. Within the same field whence arise these springs lies an extensive peat bed, an antiseptic decomposition of vegetable matter, invaluable as a medicinal agent.

If one will study the atlas of 1894 by the Weather Bureau department of the Government, compiled from all the reports of the Weather Bureau stations from the organization of each to the end of 1891, he will observe that Las Vegas Hot Springs is in the center of what is known as the "dry belt of the West." This dry belt, with an irregular, constantly varying outline, extends north and south from the northern part of Texas through Mexico and into Colorado. Following the monthly charts in the atlas above referred to, one will observe that in January the storm line is the farthest away from him, extending about midway between longitude 95° and 100°. The general monthly precipitation throughout this area does not, then, exceed an inch. In February the storm line is seen to approach a little farther west; in March still farther. It is the rule that the western edge of the storm line has reached central New Mexico and Las Vegas Hot Springs in June. This storm line begins to recede in September; by October it has passed out of New Mexico on its eastern course, and the precipitation has again been reduced to a monthly average of only 1 inch. It is noticeable, then, that this dry belt has a rainy season, during which time a large portion of the average annual precipitation falls. It is observable in studying this storm line that north of the Raton Range, which is the northern boundary of the Canadian basin, it is greater. The storm line more quickly reaches Colorado and more slowly disappears from it. According to these Government reports, the average annual precipitation at Las Vegas Hot Springs is 12 to 14 inches, most of which falls during the summer months. It is further observed that there are few, if any, habitable portions of the United States having an average annual precipitation of less than above. That there should be some precipitation must be recognized as essential to life and comfort.

A study of the latitude of Las Vegas Hot Springs is interesting in this connection. Its latitude is 35½°, the same that exists in the northern part of Africa, including Morocco, Algeria, and Tunis, and also in the northern part of Arabia, portions of the world known to be extraordinarily dry.

While the location of Las Vegas Hot Springs is so favorable as regards its minimum amount of precipitation, it has not the high temperature that is generally found upon such latitude. This is explainable by its position in regard to the Rockies and its altitude, it being 6,767 feet above sea level. It is generally known that the impression prevails among people who have read of this place, but who have not personally visited the same, that because of its southern position the summers are extremely warm; because of its altitude the winters are severe. Life at the springs convinces one that the opposite is true. The southern position, added to the fact that a spur of the Rockies extends east from the main range along the Colorado border, protects it mainly from the northwestern storms and modifies the temperature of the winter months, so that in truth it is usually mild and delightful. The intensity of summer heat prevalent in southern latitudes does not exist in this location, because of the great altitude. It is thus seen that Las Vegas Hot Springs, together with other portions of New Mexico, has a favorable all year round climate.

The springs, the peat, the freedom from dust and heavy winds, the forests of pine and cedar, the natural scenery, the opportunities for out-of-door life, render this place, in particular, especially favorable for such people as are in quest of health. The medicinal value of the springs has been long recognized; their constituents are generally of the saline element. They vary, however, to a considerable degree, sulphur predominating in one, iron in another, lithia in another, sulphureted hydrogen gas in another; free carbonic-acid gas exists in most of them. They are of unquestionable value in numerous affections peculiarly favorable for their use, either external, internal, or both. The temperature of the hottest is 144° F.; most of the springs range in temperature from 122° to 138°. Combined with the peat in about equal proportions, a union is formed inestimable in certain diseases when prescribed in the form of baths.

All these facilities tend to make of Las Vegas Hot Springs what it is endeavoring to become—a health resort upon an extensive scale. It invites pleasure seekers as well as invalids; those who desire a rest from overwork and those who desire recuperation from some long illness. Its climate must be recognized as most favorable for such as have contracted incipient tuberculosis; those who wish to escape the affections due to a heated term of the lower altitudes; those who wish to escape the rigors of winter; those who wish to avoid suffering from hay fever; its waters invite such as are affected with diseases generally benefited by hot mineral springs. Its sanitation is perfect. Malaria does not exist; sunshine predominates, thus encouraging out-door life and sports of all kinds; therefore to the pleasure seeker as well as to the invalid Las Vegas hot springs offers attractions unsurpassed in the West, and is the property of the Atchison, Topeka and Santa Fe Railroad System, which system has erected numerous buildings at a great cost for the convenience of visitors, and the work of improvement is still progressing. The main building, named the "Montezuma," is a large structure of sandstone, beautifully situated on a commanding eminence overlooking the picturesque Gallinas Canyon, as it opens out toward the rolling meadows, which meadows give the name to the town of Las Vegas, 6 miles distant. From the broad verandas, extending the entire length of the front, east, and west sides of this building, a delightful view is obtained; on the one hand are mountains with their massive shoulders outlined against the skies; in front the little hurrying Gallinas River rushes along filling the air with the distant murmurs of its waters; in another direction the valley is seen to stretch far out to the horizon; little Mexican villages with their adobe houses are scattered on both sides of the stream. In many respects the surrounding country reminds one of Switzerland, and to those fond of tramps and excursions among the mountains it offers an endless variety. Another building just completed is a hospital for the care of those invalids who need quiet and such attention as can not be given in the Montezuma. The bath house and the peat house are prepared for such as require treatment there. Numerous cottages scattered about the plant, along the confines of a large park, are held in readiness for those who desire home life. The Springs Branch of the Santa Fe Railroad affords constant and easy communication with Las Vegas, where it connects with all through trains on the Santa Fe route.

There are other springs and artesian wells near to Las Vegas besides those at the Las Vegas hot springs; the two most celebrated are the Macbeth mineral wells, owned by Peter Roth, and the Onava alterative water springs, owned by Charles Wright; the first, the Macbeth well, is an artesian well of a depth of 338 feet, geologically speaking, in the lower part or bottom of the Jurassic formation and immediately over the Triassic formation, the Triassic forming the bed and bank of this ancient extinct Jurassic sea by curving from under to an anti-incline or uplift at this immediate location. The salts in the water are derived from a bed of seaweeds formed on the coast of this ancient extinct sea by a leaching through the ashes of the decomposed marine plant for ages, extracting therefrom a natural mineral which analysis shows to be a pure sodium or trisodium compound of salts from the algæ and fucus marina, namely, in proportion of sodium chloride, 35 grains; sodium carbonate, 9 grains; sodium sulphate, 1 grain; or 45 grains to each quart of water. These are the principal ingredients or elements of the salts found in the Macbeth mineral water. The water is absolutely free from the other alkalies, such as lime and magnesia, which renders all waters hard and unfit for drinking purposes. It is a most pleasant and palatable mineral water to the taste, and to which the most fastidious do not object; really a beverage after becoming accustomed to it. The trisodium compound is a solvent of mucus in catarrh of the stomach and biliary ducts, also solvents of albumen in the urine and found in Bright's disease of the kidneys; it also corrects the acidity of the blood, of the stomach and urine, such as lactic acid, uric acid, and lithiæma found in dyspeptics

ST. FRANCIS CATHEDRAL AT SANTA FE.

and disordered intestinal digestion, and is necessarily indicated in the rheumatic or gouty diathesis, gastric catarrh, dysentery, constipation, albuminuria or Bright's disease, and of the skin. It aids and promotes the appetite, stimulates the secretions, is antiacid, an eliminant, a diuretic, and a laxative.

Macbeth mineral water is not only known at home, but each week thousands of gallons are shipped abroad.

Onava alterative water, a sulphureted, carbonated, mineral water, incomparable as a system cleaner, blood purifier, and appetizer, is found at a depth of 250 feet, and has a chemical analysis in grains per gallon as follows:

Sodium chloride	3.009
Sodium carbonate	3.807
Sodium bicarbonate	49.356
Potassium sulphide	4.938
Iron sulphide	.503
Silica	.419

Some remarkable cures have been effected by this water, and while Mr. Wright does not make any pretensions at running a sanitarium, there are always from three to a dozen health seekers at his ranch, a few miles from town, who are there for the benefit of the curative qualities of Onava alterative water.

SANTA FE COUNTY.

The county of Santa Fe does not occupy as conspicuously large a place upon the map as some of the other principal subdivisions of imperial New Mexico; but owing to the rare charm attaching to its history, and that of the unique political capital whence it derives its name, its peerless scenic and climatic attractions, and its rich and diversified resources, it naturally takes first rank in interest among its sister counties.

It is the central county of the Territory; is rectangular in form, extends south a distance of 72 miles from the thirty-sixth degree of latitude, and measures 30 miles from east to west; embraces a total area of 1,498,600 acres, of which 975,000 are officially pronounced available for cultivation and pasturage, while thousands of the roughest mountain acres are clothed with fine timber and ribbed with valuable mineral-bearing veins. It is crossed from east to west by the great transcontinental railroad of the Atchison, Topeka and Santa Fe Company, which operates over 70 miles of road in the county, and is tapped from the north by the New Mexico division of the Denver and Rio Grande Railroad, which extends from Espanola to Santa Fe, or 38 miles in the county. Excellent wagon roads also reach all the towns and settlements.

From the summit of Mount Baldy the surface of the county presents a vivid and magnificent panorama of mountains, mesas, and valleys, with numerous streams of limpid water rushing down huge mountain shoulders, over precipices and massive bowlders, into deep and narrow gorges and widening valleys, flashing in the sunlight like ribbons of silver, in their hurried and heedless race to the Rio Grande on the west, and with the lofty mountain peaks of southern and northern New Mexico and even Colorado swimming in the blue air of the dreamy distance. The main range of the Rockies on the east and the Valles and Jemez mountains beyond the Rio Grande on the west shelter this favored locality from violent winds and render the climate remarkably mild and equable considering that the altitude of the valleys varies from 5,500 to 7,500 feet above sea level. Doubtless this circumstance, together with the fertility of the soil, excellence of the water, plenitude of timber, and the many marked manifestations of rich veins and deposits of gold and silver bearing material a few miles south, prompted the intrepid Spanish explorers to locate a permanent colony and mission at Santa Fe, or the City of the Holy Faith of Saint Francis, as early as 1605. The wisdom of this selection has been plentifully demonstrated during the nearly four centuries that have since melted into the past. With the exception of the twelve years following the bloody and transiently successful revolt of the Pueblo Indians in 1680, Santa Fe has ever since been recognized as one of the most important outposts of civilization and commerce in the southwestern world, being continuously the political and military capital of this region under both Spanish and Mexican rule, and, having witnessed the frontier line of the United States carried thousands of miles out into the Pacific Ocean, still maintains its supremacy as the capital city of New Mexico, the county seat of Santa Fe County, and the most delightful residence city in the Rocky Mountains.

MATERIAL RESOURCES.

The assessed valuation of the real and personal property of Santa Fe County for the current year, excluding the large amount exempt from taxation under the law, aggregates $1,768,150.68, of which Santa Fe's share is placed at $338,155.10. There are about 500,000 acres of public land in the county, subject to entry at Government prices, and 557,880 acres more are included in Spanish and Mexican grants, the titles of which are purchasable at low rates and on easy terms. It may be added further that the county affords about 475,000 acres of good grazing land, partly covered with timber, and about 500,000 acres of arable land, 200,000 acres of which could be irrigated. In the absence of exact data, the land actually being cultivated by means of irrigation is conservatively estimated at 25,000 acres, while probably 20,000 acres more are yearly planted to crops subject to the chances of enough rain in the growing season to mature them. Wherever the valley and mesa lands of the county have been brought under the magic influence of systematic irrigation the results have uniformly proved most satisfactory, and naturally this stimulates enterprise annually to enlarge and extend existing irrigating systems and thus gradually increase the number of acres that can be depended upon to yield regular profits.

This is notably true of the Espanola Valley, in the northern part of the county. Plentifully watered by the Rio Grande and its tributaries, the Chama, Santa Clara, and Santa Cruz, this beautiful valley is now most of it under cultivation and evidences of contentment and prosperity are noted on every hand. The acreage of wheat, corn, oats, beans, and kindred crops increases each year. Alfalfa yields three and sometimes four crops per year. Sugar beets, carrying a very high percentage of saccharine matter, can be readily grown there. The orchards of apple, peach, pear, plum, prune, cherry, apricot, and nectarine trees have for several years been large and regular shippers of the choicest fruits of the earth, and their vigorous and thrifty appearance gives cheering and aromatic promise of multiplying profits in the future. All kinds of small fruits, including strawberries, raspberries, blackberries, and currants flourish.

BASKET OF SANTA FE COUNTY FRUIT.

Several extensive vegetable gardens, where lettuce, radishes, onions, asparagus, green pease, sweet corn, beets, tomatoes, celery, parsnips, and other table luxuries are raised in great profusion and perfection for the mountain markets of northern New Mexico and southern Colorado, have not only proved to be constant bread winners, but surplus producers. So far as productive qualities are concerned, these remarks may be applied to nearly all of the irrigable and arable lands of the county, particularly the Santa Fe, Tesuque, and Nambe valleys.

The distinguished and lamented Archbishop Lamy introduced the culture of choice fruits, flowers, and vegetables into Santa Fe and elsewhere in New Mexico about fifty years ago. The good man lived long enough to witness the complete success of his experiment and personally taste the rare flavor of its luscious results. It was soon found that all the most desirable varieties of temperate zone fruits, including the largest and finest flavored French cherries, could be grown here in perfection and in quantities only limited by the extent of land and available water supply; that the soil and sunshine of Santa Fe would produce roses rivaling those of France and Italy in beauty and fragrance, and that the conditions were peculiarly favorable to the cultivation of all kinds of edible vegetables. It thus happens that the orchards and gardens in and about the capital city are not only veritable beauty spots, either when blushing with sweet prophecies of better things to come or burdened with matured and mellow fruitage, but provide many families with the comforts of life. Some of these orchards and gardens are irrigated from ancient acequias taken out of the Rio Santa Fe, and others are watered direct from the mains of the local water company.

POSSIBILITIES OF IRRIGATION.

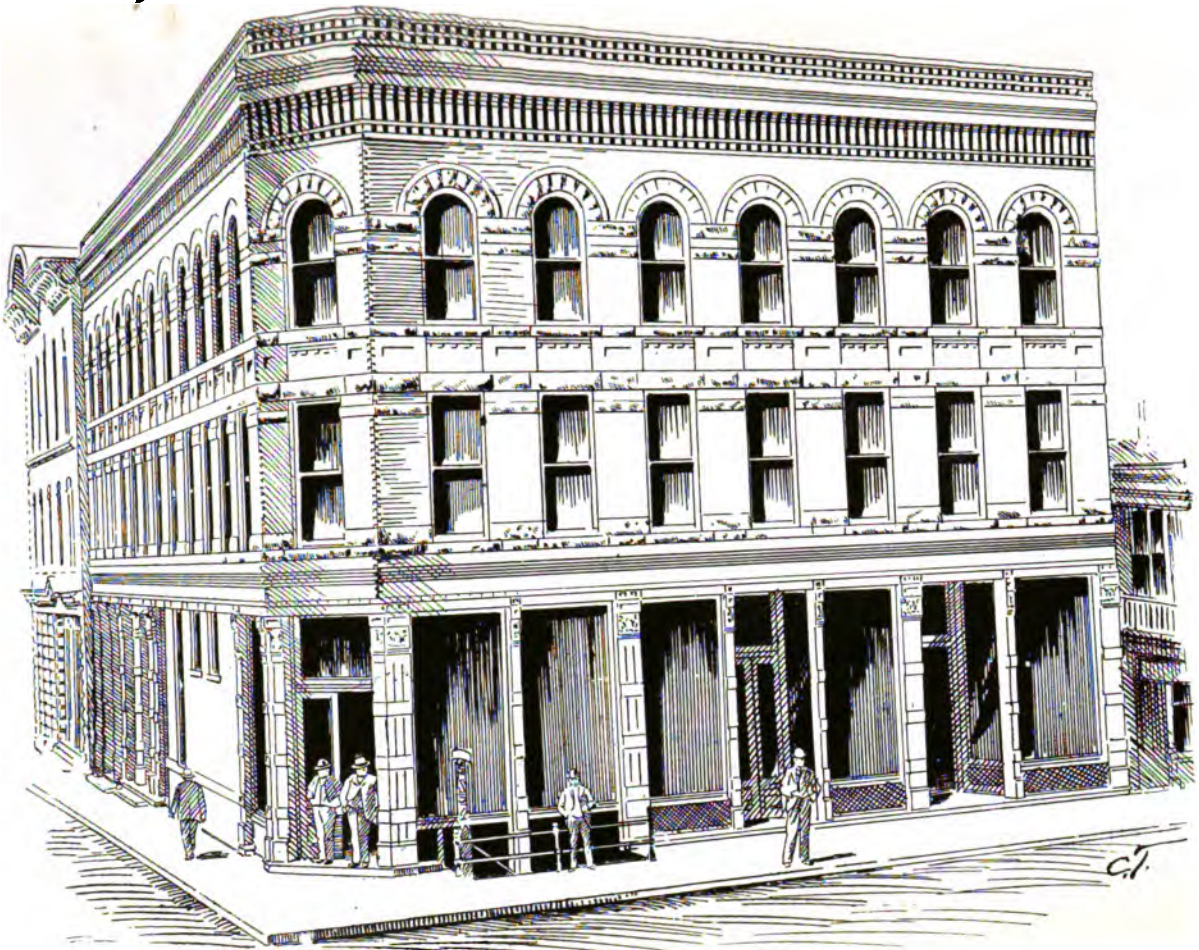
The extent of land so far devoted to the twin arts of agriculture and horticulture is comparatively small, because the natural flow of water in the mountain streams is not sufficient during dry seasons to justify taking out much longer or larger irrigating ditches. These streams carry immense volumes of flood water during the months of February, March, and April, when the snow is melting in the high altitudes and the spring rains are in progress, and again become rushing torrents during the heavy rains of July and August; but, coming from precipitous heights and pouring into expanding valleys and plains below, their invaluable surplus is soon absorbed by the porous soil or drank up by the thirsty air. So, during the months of May and June, when most needed for irrigation purposes, the supply of water is smallest. The remedy is obvious. Wisely located storage reservoirs, like those in southern California or in southwestern New Mexico, capable of holding until needed the flood waters of winter, spring, and midsummer, would render it possible to reclaim and make fruitful thousands of acres of as good land as any now under cultivation in the county.

Careful observations in the canyon show that Santa Fe Creek has a flow of 80 acre-feet per day during the months of February, March, and April; that the rainfall in Santa Fe during July and August varies from 2.50 to 3.50 inches, while in the mountains and canyons composing the watershed of the creek and embracing an area of about 50 miles the rainfall during these two months is not less than 6 inches; that the rainfall in September sometimes amounts to nearly 3 inches; and that after the irrigation season closes, or during the months of November, December, and January, there is always surplus water. In the light of these facts, after making liberal deductions for evaporation and seepage, competent hydraulic engineers reach the conclusion that the storage of the flood or waste waters of the Santa Fe would reclaim and render valuable from 20,000 to 25,000 acres that are now arid and practically worthless.

The Nambe, with numerous natural storage basins along its course, carries three or four times as much water as the Santa Fe, and hence is capable of reclaiming fully 60,000 acres. The Tesuque has about the same, and the Galisteo about half the flow of the Santa Fe.

The surplus waters of the four streams named could be conveniently stored and distributed over the Santa Fe plains as needed, and it will be perceived that, without taking into account the Rio Grande, their combined capacity would be sufficient to reclaim over 100,000 acres in addition to the lands they are now watering. These lands can be secured at Government prices, or on most favorable terms of private owners, and considering that their soil is as fertile and easily tilled and only requires water to become as fruitful as lands in the Espanola Valley that annually yield excellent returns and are held at from $30 to $300 per acre, the thoughtful reader will be able to form an approximate notion of the large direct and indirect benefits that would flow from the proposed system of storage reservoirs. It would not only richly reward the capital and energy invested in constructive work, but would prove a blessing to many deserving men by affording them much coveted opportunities to gain good homes and comfortable incomes in this almost ideal climate. Ten faithfully and intelligently cultivated acres, one half planted to the varieties of fruits that flourish so well at Santa Fe and in the Espanola and Tesuque valleys, and the other half devoted to the culture of table vegetables, would furnish ample occupation and support for a family. The small fruits and vegetables would pay well from the very start, while the trees would begin to bear fruit in three or four years. Celery of superior quality, possessing in a high degree the delicious nutty flavor so much prized by epicures, readily grows here, and might be made a source of large and constant profits. Acres of asparagus, cabbage, cauliflower, onions, oyster plant, and parsnips would reward industry. Experiments prove that sugar beets, grading higher in sugar content than those of California and Nebraska, readily grow here, and will be raised on a large scale as soon as the eyes of capital are opened to the wisdom of erecting factories at Santa Fe for their reduction. Fields of alfalfa, wheat, oats, and corn would pay. Irrigated lands are unfailing crop producers. The rapid and successful development of the Cochiti, south Santa Fe County, and other near-by mining districts, with the certainty that the number of consumers there will soon be multiplied to thousands, guarantees the best possible market for all that these lands could produce. What an inviting field for the establishment of colonies. What tempting and unsurpassed opportunities are thus presented to the many invalids who are seeking and finding fresh health and vigor under the benign influences of the almost perpetual sunshine and the pure, dry, rarified air of a region over which skies of the softest blue tenderly bend, as if bestowing a special blessing.

In consequence of the large shipments of cattle and sheep during the past few years, the extensive areas of fine grazing land are not nearly as well stocked as they should be. According to the books of



Business Block in Santa Fe.

the assessor, the live stock in the county is classified as follows: Horses, 1,741; cattle, 1,906; sheep, 48,310; goats, 3,793; mules and burros, 510. Clearly the field for stock growers is full of invitation. The experiment of raising goats on a large scale, chiefly for the sake of their pelts, has been undertaken.

MINING—PAST, PRESENT, AND PROSPECTIVE.

In marked contrast with the prolific orchards, fields, meadows, and gardens of the northern valleys and mesas, but even more important and interesting, are the gold, silver, copper, lead, iron, zinc, and turquoise bearing mountains and hills about Cerrillos, Dolores, Golden, and San Pedro, and the great anthracite and bituminous coal measures at Madrid, in the southern part of the county. Unquestionably the gold found in the locality indicated was one of the principal reasons why the Spaniards took such desperate chances to plant and maintain colonies in this county centuries ago. They extensively worked the famous old and new placers at Dolores and Golden two or three hundred years ago, rescuing therefrom several million dollars' worth of gold, mainly by means of the labor of enslaved Pueblo Indians and the rudest possible methods, even obtaining scanty supplies of water by melting snow with heated rocks; and their descendants are still working these inexhaustible deposits of pay gravel by means of "dry washers." Much of the gold is quite coarse. Years ago a nugget was found near Dolores that yielded about $400, and after heavy rains nuggets worth several dollars each are often picked up. Except for the absence of water the stream of gold from these fields would be immense and continuous. Modern skill and enterprise have partly solved the problem by the agency of deep wells and powerful steam pumps, and can be relied upon finally to achieve success in a much larger degree. Artesian-well experiments have so far failed, but confidence is entertained that ultimately an artesian-well flow will be secured. The lodes in the surrounding hills, whence the placer deposits undoubtedly crumbled and washed down, are of inestimable value. Indeed, the range of mountains extending from Dolores south about 8 miles is virtually one vast upheaval of mineralized matter. Cunningham and several other hills of the range are veritable mountains of ore of high enough grade to warrant the belief that the whole mass will be worked when the requisite facilities are introduced.

Some of these lodes were developed to the extent of hundreds of feet many years ago, and there are evidences that much mineral was extracted. It is estimated that gold to the value of $5,000,000 was taken out of the old workings of the Ortiz mine, and the wealth of several of the prominent native families of the Territory can be traced to this source. This mine is now being systematically worked and its free milling output treated at a plant on the ground. In the same vicinity is the Benton mine, from one pocket of which $60,000 worth of ore was mined in a few months some years ago. Adequate reduction works near at hand are needed to make this and other lodes in the Ortiz Mountains steady producers.

At Golden, a few miles south in the same range, are found numerous lodes of gold and silver bearing ore, as well as blanket deposits of lead and iron carbonates that carry both of the precious metals. Several of these lodes are undergoing systematic development, which promises rich results. Tests at small local plants prove that most of the ores will readily yield their values in Huntington mills. Two miles farther south are the great San Pedro copper mines, showing large bodies of copper ore which pay handsomely at the smelter near by. Owing to litigation the mines mentioned were not worked for several years, but are now being operated under competent management, and both mining and reduction facilities are being increased as rapidly as possible.

Large bodies of silver-bearing lead and zinc ore have been opened at Cerrillos, but the low price of silver and other causes have prevented their being worked during recent years. The workings of the Cash Entry mine are very extensive, and it is understood that great bodies of ore are disclosed that would pay well at the present prices of silver and lead. The large bodies of iron, zinc, and lime will, some day, be in demand. A fine, modern smelter of 80-tons capacity occupies a prominent and desirable site at Cerrillos, but has not yet been blown in.

At Turquesa, a few miles north of Cerrillos, are located the celebrated Tiffany turquoise mines, from which thousands of dollars' worth of magnificent gems have been extracted and shipped to New York. Experts pronounce them superior in purity, luster, and enduring sky-blue color to any produced in the world, surpassing the turquoise of Persia in the exact tint desired. Garnets of rare beauty are also found in the county.

Much prospecting is going on in the mountains near the city of Santa Fe, and some fine-looking specimens of copper, iron, and mica have been brought in, but not enough work has been done to determine whether valuable bodies of mineral have been found.

COAL MEASURES AT MADRID.

The coal measures at Madrid, just south of Cerrillos, show three distinct veins from 5 to 10 feet thick, extending for miles, and are pronounced practically inexhaustible. The output of these veins is remarkably varied, including soft, free coking, noncoking bituminous, semianthracite, and anthracite, and in places natural coke is found. The intimate association of bituminous and anthracite veins appearing in alternate strata in the same mine is a phenomenon not observed elsewhere, and one that deeply interests geologists. Purely practical people, however, are contented with the knowledge that the veins contain enough for many generations to come, and that it is nearly all of superior quality. The mines are operated by the Cerrillos Coal Railroad Company, whose tracks reach the workings, give employment to 554 men, and produce annually about 250,000 tons of coal, worth about $450,000. The anthracite mine produced 25,000 tons, worth $100,000, last year. The company also operates a large coke-making plant near the mines, and finds a ready market for its product at the different Territorial smelters and at El Paso. Right here it may be added that the construction of a mammoth electric plant, for the purpose of generating and transmitting power to operate the Albemarle mine and mill in the Cochiti mining district, is now in progress at Madrid, where the vast accumulation of slack affords unlimited quantities of cheap fuel.

SANTA FE.

The historic city of Santa Fe, seat of the government of the Territory of New Mexico and the county of Santa Fe, enjoys the distinction of being the oldest town and the oldest capital on the American

SAN MIGUEL CHURCH, SANTA FE.

continent. Its permanent settlement by Europeans antedates the founding of Jamestown and also the landing of the Pilgrim Fathers at Plymouth more than twenty years. The thrilling and romantic incidents composing its story, the protracted and bloody struggles with hordes of savage Indians, the capture and pillage by hostile Pueblos in 1680, the general massacre of missionaries and explorers and flight of the governor and a few followers in the night to El Paso, the reserving of some of the handsomest Spanish maidens for wives of favored warriors, the desecration and destruction of the Christian churches and the restoration of the worship of snakes and stone idols, the reconquest by Diego de Vargas twelve years later, the terrible punishment visited upon the rebellious Pueblos, the change from Spanish rule to the rule of the triumphant Republic of Mexico, the capture by the United States forces under General Kearney and the building of Old Fort Marcy in 1846, the stirring scenes accompanying the distribution of the immense traffic of the Santa Fe trail, the wild deeds of desperadoes and the fabulous hazards at cards in the days before the advent of the railroad, afford the material for an epic poem of deep interest.

Here, so carefully preserved that the marks of its three hundred and one years of age are perceptible, is located the noted "Adobe Palace," which was the official residence of the Spanish and Mexican governors, and since the Mexican war has been the headquarters of all the Territorial governors and secretaries appointed by the different Presidents of the United States. Here is situated the oldest house standing on American soil, and near by is the San Miguel church, first built in 1540 and still used as a regular place of worship. Here stand the beautiful and imposing new capitol building, the massive modern cathedral of St. Francis, the large and enduring stone Federal building, the modern penitentiary of the land, San Miguel College, Loretto Convent, St. Katherine and the United States Indian schools, the New Mexico Industrial School for the Deaf, Dumb, and Blind; Presbyterian, Episcopal, and Methodist churches; the large brick Presbyterian mission school, besides many fine modern business blocks and private residences. Here side by side are object lessons whereby the civilization of the seventeenth and eighteenth centuries can be studied in contrast with that of the present day as nowhere else in America.

Environed by protecting hills and thus exempt from heavy winds, surrounded by enchanting natural scenery, beautified by orchards and gardens of flowers, blessed with a climate that is free from extremes of heat and cold, and air that is pure and tonic; supplied with an abundance of pure water for domestic and irrigating purposes from the extensive storage reservoir in the mouth of Santa Fe Canyon; furnished with competing rail, express, and telegraph communication with all outside points; the headquarters of all the Federal and Territorial officials; the meeting place of the legislature, the supreme court, the United States Court of Private Land Claims, the United States and Territorial district courts, and the various Territorial boards; the home of the archbishop of New Mexico, Arizona, and Colorado; putting in a modern sewerage system, and preparing to build large new schoolhouses up to the highest standard of excellence, Santa Fe is naturally forging to the front as a popular residence city.

The waterworks are located about 2 miles up the Rio Santa Fe, cost about $300,000, and consist of a large reservoir or artificial lake secured by means of a semicircular dam across the canyon—600 feet long, 350 feet thick where securely tied to berrock, and 120 feet high—with mains and service pipes extending to every part of the city. A smaller reservoir on the hillside supplies the power required to operate the city's electric-light plant. The present population is about 8,000.

Cerrillos is the principal trading point in the southern, and Espanola in the northern section of the county. As has been shown in previous parts of this review, both have splendid resources, both are flourishing and progressing, like all parts of the county; both are yearly building large business houses and better private residences; both have good schools and several churches, and both are clearly destined to grow in business and population.

Among the substantial improvements at Cerrillos may be mentioned a handsome stone schoolhouse, while an idea of the trade of Espanola may be gained from the fact that one general store there annually sells goods to the amount of about $150,000.

Possessing material resources unrivalled in value and variety, and surrounded by exceptionally favorable natural conditions, the people of Santa Fe County are enjoying a prosperous present and contemplating the future with unbounded confidence.

WOMAN'S BOARD OF TRADE.

The woman's board of trade of Santa Fe has very recently passed its seventh anniversary. The founder of this organization is Mrs. Cora L. Bartlett, wife of the present solicitor-general of the Territory of New Mexico.

The object of the organization is to advance every interest pertaining to the welfare and prosperity of the "oldest city in the United States." This body is regularly incorporated under the laws of the Territory of New Mexico. The standing committees for work are, finance, library, visiting and relief, intelligence, improvement, industrial house, woman's exchange, prevention of cruelty to animals, reception and education, press, and cemetery.

The public plaza is entirely under the direction of the Woman's Board of Trade of this city, and the city of Santa Fe appropriates $200 per year towards its support. A free public library of over 1,200 volumes and a free reading room, with all the leading magazines and papers, are open to the public.

A half, or pauper rate, is granted this board by both the Atchison, Topeka and Santa Fe Railroad and the Denver and Rio Grande Railroad companies, and with the fiscal year ending June 30 there have been 36 half-rate tickets granted. It also owns a pauper burial ground for the benefit of those too poor to purchase lots.

The visiting and relief work is the most important of all its branches, as hundreds are given relief in one way or another every year.

The cemetery committee which has had charge of Fairview since May 1 has expended $166 cash, besides donations of labor, lumber, water, etc.

The board owns 25 shares of stock in the fruit evaporating company, its object being to assist in establishing and promoting any worthy enterprise.

The treasurer's report up to June 30, 1899, shows a balance on hand at that date of $220.76. Total receipts from all sources, $1,038.61. The expenditures from this amount for salary of librarian, relief work, policeman for plaza, purchase of books, etc., amount to $817.85.

The woman's board of trade prides itself on the businesslike way in which its affairs are conducted, as well as its meetings. Its membership remains about the same (31 members) and unlimited. Every progressive woman in Santa Fe should be a member of this board, granted, of course, that she be willing and is so situated that most of her time can be given to work for the public.

The officers for the year 1899 are as follows: President, Mrs. Iad Rivenburg; vice-presidents, Mrs. George H. Wallace, Mrs. Creighton, and Mrs. Warner; recording secretary, Mrs. Anita Chapman; corresponding secretary, Miss Mamie Morrison; federation, Evaline Crichton; treasurer, Miss Bertha Staab; chairman of State correspondence for G. F. W. C., Mrs. M. J. Warner.

EARLY HISTORY.

In 1541, when Coronado passed through the then unexplored country in search of the fabled Seven Cities of Cibola, he found an Indian pueblo or town already established upon the spot where the city of Santa Fe now stands. It was undoubtedly a place of much importance among the tribes who occupied the country at that time, as Coronado estimated the population at 15,000 souls. The many natural advantages of the location early attracted the attention of the Spanish settlers, and about the year 1600, perhaps sooner, it became a permanent Spanish town and the seat of government for that part of New Spain which was ceded to the United States in 1848.

On August 8, 1680, the Pueblo Indians, under the leadership of Pope, a Taos Indian, revolted against the Spanish and began a war of extermination on the invaders. So successful were they in the uprising that on August 21 of the same year the Spaniards were compelled to evacuate the town and retreat to a point near what is now the city of El Paso, Tex. So soon as the Spanish were gone Santa Fe was partially destroyed by fire. The churches and monastery were burned save the adobe walls, the official documents furnished fuel for a huge bonfire in the plaza, and as far as possible all evidences of the Christian religion were wiped out.

Santa Fe, and in fact the whole land, remained in possession of the Indians until September 13, 1692, when Don Diego de Vargas Zapata Lujan, at the head of 80 mounted Spaniards and 100 friendly Indians, after a battle of eleven hours, defeated the Pueblos and regained possession. After that memorable fight the Spanish maintained their supremacy in New Mexico until August 18, 1846, when Colonel Kearny, at the head of a detachment of United States troops, entered Santa Fe and took possession of it in the name of the United States. It is impossible to here go into details of the history of the city before or after the American occupation, interesting as it is, but in the light of that history no other city in the entire country is so rich in tradition and in historic events as this ancient city of the Spaniards.

PLACES OF INTEREST.

To enumerate all the places of interest in Santa Fe would require entirely too much space for the purposes of this brief sketch, but a few of the most important are:

The Territorial library, containing the ancient Spanish and Mexican archives from 1621 to 1846.

San Miguel Church, built in 1540, partially destroyed in the revolution in 1680, reoccupied in 1692, and completely restored in 1710. This is the oldest church in the United States and contains many relics of the early days.

The old house, believed to antedate the Spanish occupation.

The Cathedral of San Francisco, behind which is the chancel of the old parish church, with a carved and painted reredos, both curious and interesting, erected by Governor Del Valle and his wife in 1761.

The cathedral museum, containing many Spanish paintings and other objects of interest.

The Territorial historical rooms, full of antiquities of historic interest.

Old Fort Marcy, the commanding situation famous in all the sieges of the city; ruins of the old fort built by Colonel Kearny in 1846.

The garita, on the road to old Fort Marcy, by the west wall of which the leaders of the revolution of 1837 were executed.

The plaza in the center of the town, around which cluster many memories of the conquest of the land by the hardy Spaniards and of the stirring scenes of more recent days. The soldiers' monument is located in the center of this park.

The Church of Our Lady of Guadalupe, with its large and interesting altar piece on canvas, containing six pictures of the appearance of the Virgin to Juan Diego, and other paintings and wood carvings.

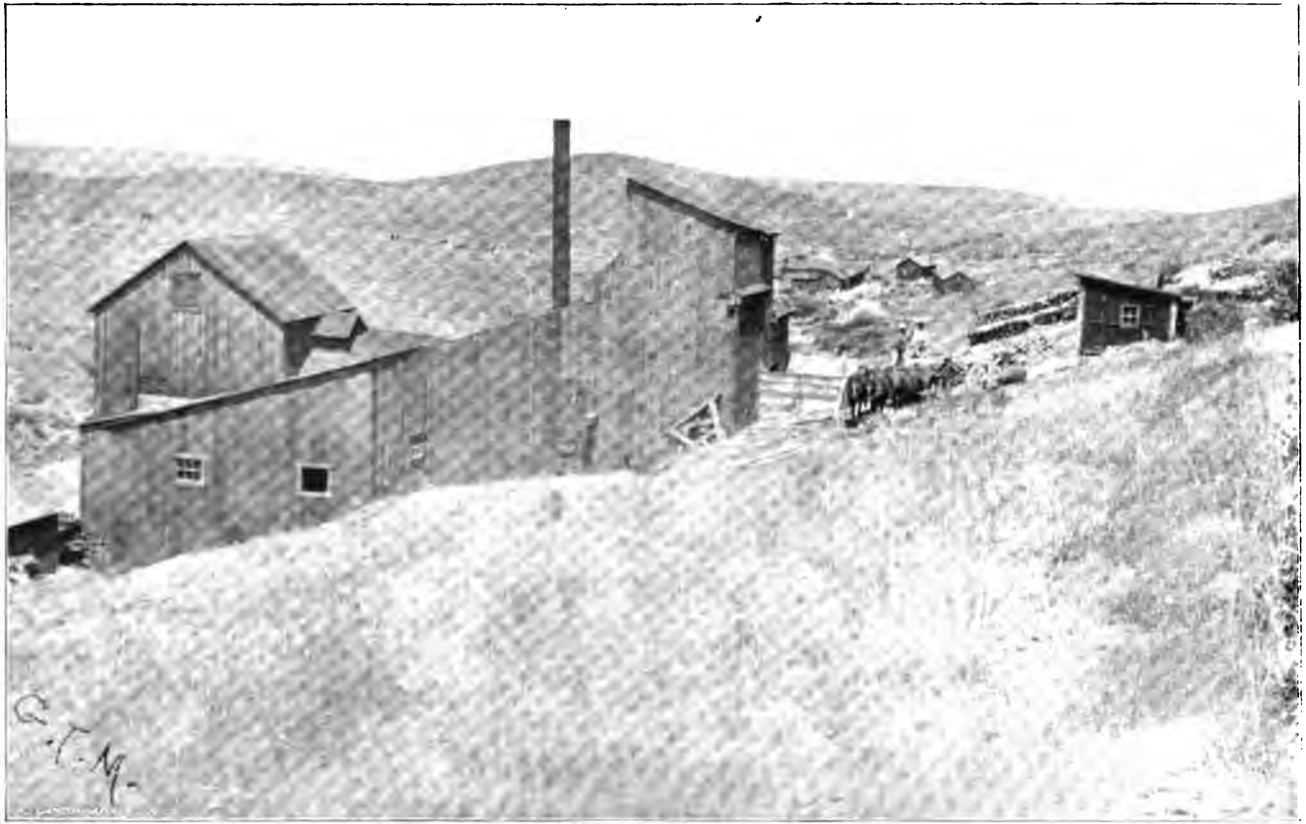
Monument to Kit Carson in front of the Federal building.

The Rosario Chapel, erected on the spot where De Vargas made his vow before the surrender of the city in 1692.

The most interesting of all the buildings is, without doubt, the governor's palace, an adobe structure built in 1598 and continuously occupied by the Spanish, Mexican, and American governors for three hundred years. The men who have lived and conducted the affairs of state in the old pile included some of the foremost names of the land, not only of the Territory but of the Eastern States.

To quote from the words of Ex-Governor Prince, author of the most authentic and complete history of New Mexico extant:

> Without disparaging the importance of any of the cherished historical localities of the East, it may be truthfully said that this ancient palace surpasses in historic interest and value any other place or object in the United States. It antedates the settlement of Jamestown by nine years and that of Plymouth by twenty-two, and has stood during the two hundred and ninety-nine years since its erection, not as a cold rock or monument, with no claim upon the interest of humanity except the bare fact of its continued existence, but as the living center of everything of historic importance in the Southwest. Through all that long period, whether under Spanish, Pueblo, Mexican, or American control, it has been the seat of power and authority. Whether the ruler was called viceroy, captain-general, political chief, department commander, or governor, and whether he presided over a kingdom, a province, a department, or a Territory, this has been his official residence.
>
> From here Onate started, in 1599, on his adventurous expedition to the eastern plains; here, seven years later, 800 Indians came from far-off Quivirato to ask aid in their war with the Axtaos; from here, in 1618, Vicente de Salivar set forth to the Moqui country, only to be turned back by rumors of the giants to be encountered; and from here Peñalosa and his brilliant troop started on the 6th of March, 1662, on their marvelous expedition to the Missouri; in one of the strong rooms the commissary-general of the inquisition was imprisoned a few years later by the same Peñalosa; within its walls, fortified as if for a siege, the bravest of the Spaniards were massed in the revolution of 1680; here, on the 19th day of August of that year, was given the order to execute 47 Pueblo prisoners in the plaza which faces the building; here, but a day later, was the sad war council held which determined on the evacuation of the city; here was the scene of the triumph of the Pueblo chieftains as they ordered the destruction of the Spanish archives and the church ornaments in one grand conflagration; here De Vargas, on September 14, 1692, after the eleven hours' combat of the preceding day, gave thanks to the Virgin Mary, to whose aid he attributed his triumphant capture of the city; here, more than a century later, on March 3, 1807, Lieutenant Pike was brought before Governor Alencaster as an invader of Spanish soil; here, in 1822,



THE MILL ON SENATOR ANDREWS'S PROPERTY.

the Mexican standard, with its eagle and cactus, was raised in token that New Mexico was no longer a dependency of Spain; from here, on the 6th day of August, 1837, Governor Perez started to subdue the insurrection in the north, only to return two days later and to meet his death on the 9th near Agua Fria: here, on the succeeding day, Jose Gonzales, a Pueblo Indian of Taos, was installed as governor of New Mexico, soon after to be executed by order of Armijo; here, in the principal reception room, on August 12, 1846, Captain Cooke, the American envoy, was received by Governor Armijo and sent back with a message of defiance; and here, five days later, General Kearny took formal possession of the city, and slept, after his long, weary march, on the carpeted earthen floor of the palace.

Coming down to more modern times, it may be added that here Gen. Lew Wallace wrote Ben-Hur, while governor of the Territory, in 1879 and 1880.

SIERRA COUNTY.

There has been a remarkable and gratifying development of the two principal industries of this county during the past two years, and latest reports prove that in both stock-raising and mining interests this progress is in full tide.

Though small in area, Sierra County contains a large proportion of rich pasture lands, and the cattle interests are perhaps the most uniformly prosperous. At present there are upon the various ranges 130,000 head of cattle, 100,000 sheep and goats, and some 16,000 horses. About one-tenth of the cattle is owned by the Las Animas Cattle Company, the remainder being well divided between a great many smaller ones. The profits of the industry remain with and redound to the benefit of the community.

In agriculture there has been little progress. About 6,500 acres are under cultivation out of some 300,000 acres of good, arable land that could be brought under ditch without too great expenditure. The farmers are prosperous and find a ready market for their entire product in the mining camps and at the cattle ranches. The prices they get would excite the envy of a Kansas farmer: Hay, $12 to $16 per ton; grain, 1 to 1½ cents per pound; potatoes, 2 to 2½ cents per pound; apples, 2 to 5 cents per pound. The product of the farms does not near supply the needs of the towns and ranches, and the merchants get their largest supply from Kansas, Colorado, and California.

POPULATION.

The population of the county is between 5,000 and 5,500, and is composed of two-thirds American miners and settlers and the remainder of the native Spanish-American people. There are no Indian residents within 150 miles, and those only a miserable remnant, kept strictly upon an Arizona reservation. The native Mexicans are a peaceable, frugal, and industrious race, and they afford an increasing source of cheap labor in mine and field.

PUBLIC SCHOOLS.

Excellent schools are maintained in seventeen school districts, under the supervision of the county school superintendent. Eight to ten months of the year are devoted to the education of children, and the teachers selected are of the very best character. The school fund has always been cherished, and commodious, substantial, and handsome schoolhouses have been built and are building. In all departments of primary education the school system of Sierra County will bear comparison with communities otherwise far more advanced.

CLIMATE.

It is not too much to say of this land of sunshine that there exists a perpetual summer. There is but just enough of cold in the months of November and December to mark the change from summer to winter, while a fall of snow is rare, and at most does not remain upon the ground more than a few days. In the higher portions of the mountain ranges some snow is, doubtless, preserved during the colder months, and serves to maintain the summer streams. With such a winter temperature it might be expected that a very high thermometer would rule in summer, but such is not the case. From 90° to 95° in the shade is the greatest heat recorded, and from 20 to 30 below freezing point the most severe cold. The altitude—4,000 to 5,000 feet—of the main portions of the region will account for these moderate extremes. In such a climate mining operations are pursued to the greatest possible advantage, and agriculture aided by irrigation has no drawbacks. The devastations of snowslides and blizzards are here unknown, and the same may be said of pneumonia, that scourge of the miners in the North.

THE SANTA FE RAILROAD.

The Atchison, Topeka and Santa Fe Railroad passes through Sierra County, like the river, from north to south. Its distributing points are at Lake Valley for the south and at Engel for the east, from whence well-equipped stage and freight lines penetrate to the different towns and villages of the county. The Santa Fe directory has done much to develop the resources and aid in the growth of this section by granting low rates of transportation on ores to the great smelting points of Colorado, and of Kansas City, Socorro, N. Mex., and El Paso, Tex. For the 740 miles from Lake Valley to Pueblo and Denver the rate is but $5.80 per ton. Some important branches and extensions are contemplated to penetrate to the most remote mining camps of this region, and it is the aim of the directory to foster and sustain, to the extent of its power, the rapid growth of the mining industry. An immediate improvement is the extension of the Lake Valley branch to Hillsboro, the county seat, which will bring the road within 12 miles of the most distant mines in the southern half of the county.

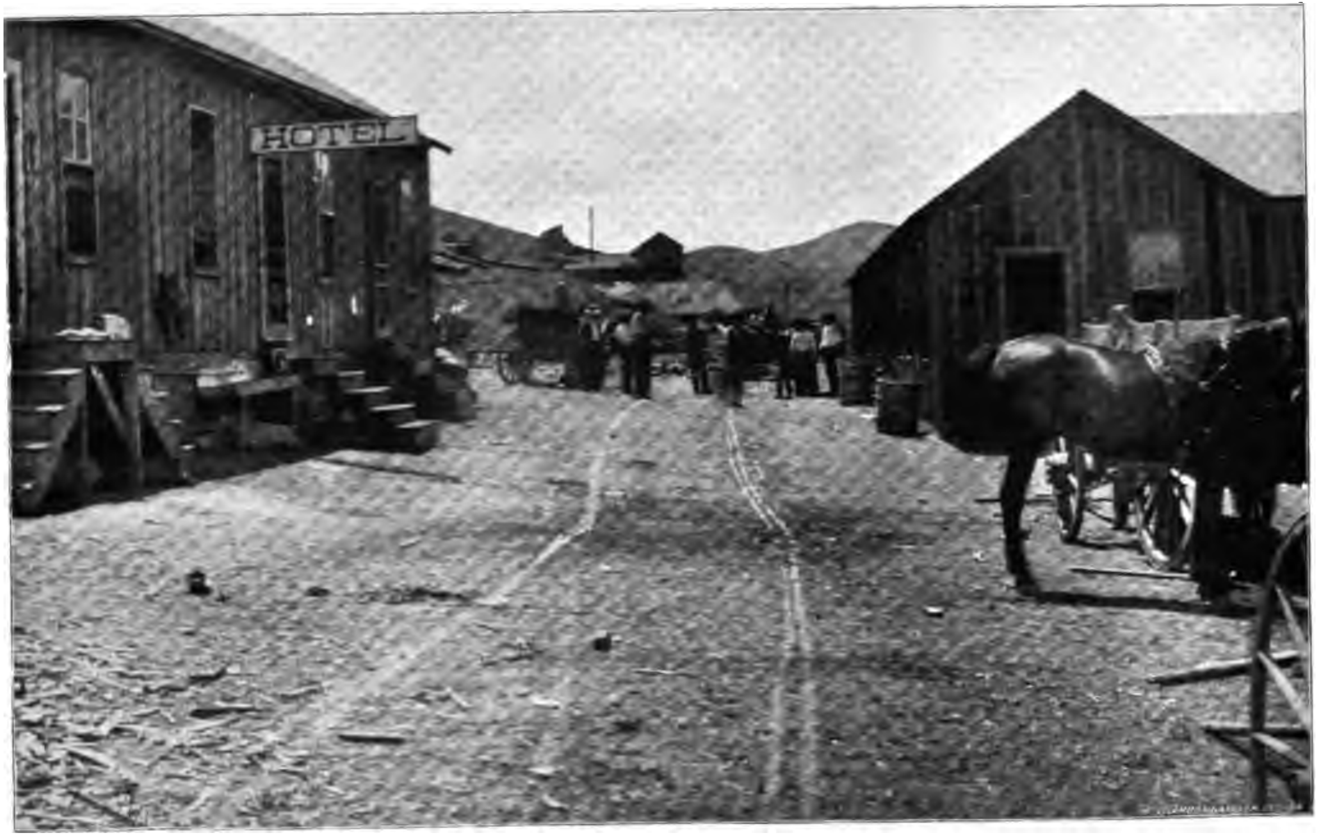
WAGON ROADS.

The roads are of good grade, well-maintained repair, and conduct through the most important districts and reach the more notable mines. Roads from the agricultural lands enable the farmers to sell their produce in the markets of the mining towns, where they obtain prices really remunerative.

LABOR AND WAGES.

Miners earn $3 and $3.50 per day; laborers $1.50 to $2.50. Most of the labor is performed by the Mexican people, and of these there has been, with the growth of the mining industry, and from the neighboring lands of Texas and Mexico, a steady and sufficient immigration. Skilled miners from the North are constantly arriving, and so far no difficulty on the score of help has been experienced.

The Trippe Mine, Sierra County.



Some of the Buildings on Senator Andrews's Property.

LUMBER, TIMBER, AND FUEL.

Sawmills located in the canyon valleys of the Black Range supply the needed lumber for buildings and use in mines, and an ample supply is kept on hand in the lumber yards of the different towns at an average price of 3 cents per foot. Heavy mining timbers for supports are delivered at the mines for from 4 to 8 cents per running foot, according to locality and proximity to timber. Fuel wood is delivered in the towns at $4 per cord. The use of coal is increasing, and with the extension of the railroad to Hillsboro will become the universal fuel for all manufacturing purposes.

MERCANTILE SUPPLIES.

In the principal towns of Hillsboro and Kingston very large stocks of merchandise are carried, and prices will compare favorably with any other known mining districts. Smaller but complete stocks are also carried in the lesser towns of Chloride and Lake Valley, and some convenient stores are to be found where towns have not yet sprung up, but where there is mining, and supplies are needed. The Sierra County Bank at Hillsboro and the Percha Bank at Kingston supply the needed facilities of financial exchange and accommodation.

MILLS AND SMELTERS.

The building of ore-reduction works has kept pace with the production of the mines. Amalgamation and concentration works both are now crowded to their utmost capacity, and an enlargement in this direction must soon be made. Two smelters, or rather matte furnaces, have been erected and operated during the past year, and in this field a large expansion is probable and expected. Water supply for mills has been obtained during the dryest seasons known in the history of New Mexico, and by the aid of some engineering the available supply can be greatly increased.

HILLSBORO.

Hillsboro at the center of the gold district is still the leading town of the county of Sierra. The mines maintain a regular output, and several new ones have been brought into prominence during the past year. Principal among those may be mentioned the Trippe mine owned by a Pennsylvania company. Three shafts have been sunk on this mine, and levels opened to a depth of 300 feet. A mill has been built and is in constant operation, handling 20 tons of ore per day, and turning out bullion and concentrates to the value of $10,000 per month. The mine is also shipping to the smelters a nearly equal value of first-class ore, from $60 to $100 in value per ton. Near the mill and around the post-office store a little town is springing up called Andrews, after Senator Andrews, the president of the company. Of the older mines the Richmond, the Wicks, and the Snake group maintain this position and keep in employment from 100 to 150 men. Other mines are being worked under lease or by their owners, but in the aggregate contributing considerably to the total output of the camp. The building of ore-reduction works and the introduction of improved machinery have kept pace with the production of the mines. Amalgamation and concentration works are now crowded to their utmost capacity, and an enlargement in this direction must soon be made. About $500,000 is the estimated output of this camp for 1899. The Hillsboro ores carry from 3 to 20 per cent of copper, and the great rise of this metal is almost as much to the miners as the rise in beef values has been to the cattlemen. From 60 cents per unit in 1895 to the present $2.85 is a big jump, but it is founded on true scarcity and demand, and therefore likely to be well maintained.

Among the silver camps now recovering from the long depression and again getting to work at mining for what there is in it, Hermoso has been making some great records of happy results and strikes by leasers and small owners. A pocket of ore in that district means thousands of dollars to the finder. The most remarkable thing in silver this year, however, has been at the Lookout mine on Trujillo Creek, the last carload of ore netting the lessees and owners $11,000. With three chutes of this ore opened and actively working, this mine is likely to make a big sensation before long.

Other mines in this county are also producing very rich ore, and there is a general feeling of renewed confidence in silver mining. At the old and once famous camp of Kingston there is also a noticeable revival of mining and increase of production. A new reduction mill built there by a Detroit company is successfully handling large quantities of low-grade ore, and the product is a great addition to the resources of the camp.

Lake Valley is also waking up and doing some mining for rich ore, and for the valuable fluxing ores peculiar to that camp. In the Caballo Mountains copper has been found in paying quantities and under circumstances that indicate permanence. Several good miners are in the district, and much may be expected from this source. Altogether the people of Sierra County are well and profitably occupied, and are as self-supporting and independent a community as can be found anywhere.

Colonies of from ten to twenty families with small capital, say from $1,000 to $2,000 each, could make excellent locations in this county. The land is cheap and the titles are good, and there is a great demand at all times for agricultural products.

Sierra County enjoys the distinction of being out of debt. Its warrants are maintained at par, its resources varied, its people energetic and hopeful, and its outlook for the future bright. It is situated in the south central part of the Territory. Its area is about 2,376 square miles. The county lies principally in the Rio Grande watershed, which river traverses its entire length, taking up in its course hundreds of lesser bodies of water, which will serve as an important factor in making agriculture and horticulture the leading industries of this section.

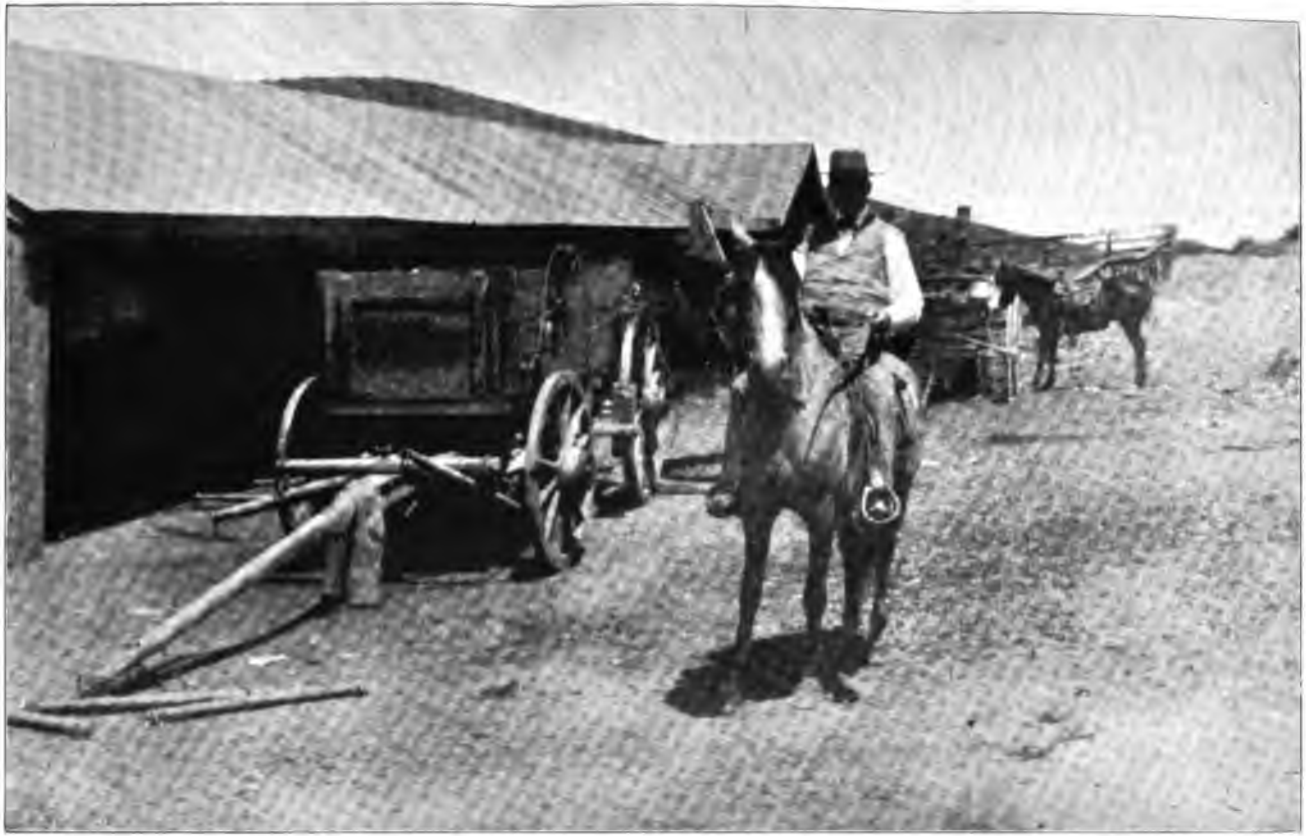
WARM SPRINGS.

The warm springs, in the valley between Hillsboro and the mines, are provided with a commodious bath house, swimming and private baths, and are a great source of health and pleasure to the miners, who attend in great numbers at least once a week. The water is just comfortably warm, and the baths are in constant use the year round.

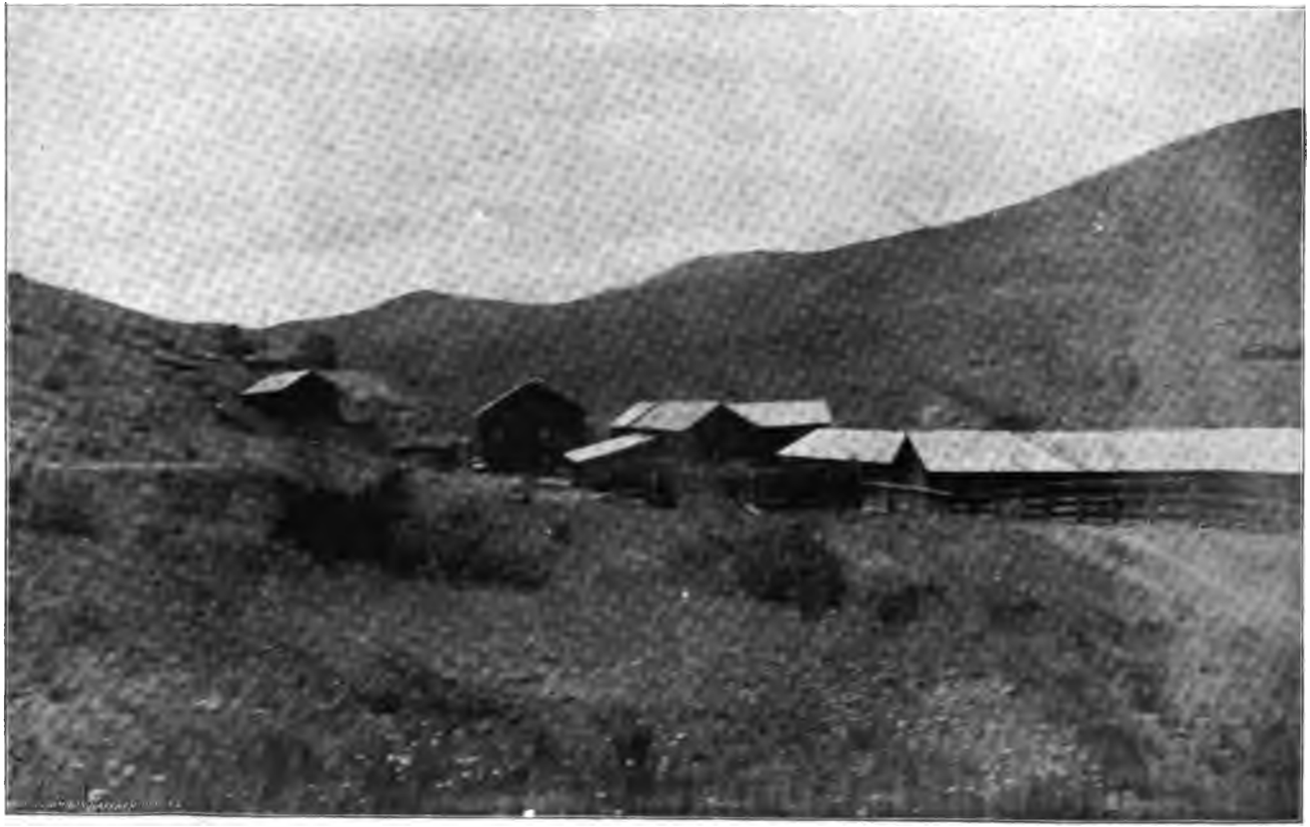
At Las Palomas, on the Rio Grande, and at Ojo Caliente, north of Grafton, are extensive hot springs and noted health resorts.

HON. W. H. ANDREWS'S PROPERTY.

The most extensive mining property in the Hillsboro district is that operated by Hon. W. H. Andrews, of Pittsburg, Pa., under the name



The Corral and One of the Large Ore Wagons; also showing Senator Andrews on Horseback.



A BIRD'S-EYE VIEW OF MILL AND BUILDINGS, SENATOR ANDREWS'S MINE.

of the Philadelphia Mining and Milling Company. Senator Andrews entered the field of mining in New Mexico in 1897. He purchased and bonded a large number of claims in the Hillsboro district, and after thoroughly prospecting each one selected those best adapted to his purpose and relinquished the balance. Those retained were the El Oro, Golden Rule, Golden Courier, Bona, Little Stanley, Mignon, Corona, Satisfaction, Trippe, Hillsboro, and Homestake.

After the selection had been made preparations were immediately begun for the construction of a mill. To determine what process was best adapted, several tons of ore were shipped to Denver, Colo., and a thorough test of the various processes for the extraction of gold was made, and the Peletin-Clerici cyanide process was accepted. A plant capable of handling 50 tons per day was constructed on the El Oro claim. The process was eminently satisfactory at first, but the character of the ore changed, and it was found necessary on this account to discard the cyanide process entirely and replace it by ordinary amalgamation and concentration, the Wifely concentrating table being used for the latter operation. The difficulty with the cyanide process lay in the fact that the ore handled was very heavy in iron. After it was crushed to 60 mesh and delivered to the cyanide tanks it was there agitated for a period of about nine hours, the coarse gold settling of its own weight, the fine gold being dissolved and precipitated on quicksilver (which covered a copper plate) by electricity. The agitation acted as a concentrator, and the iron settled over the quicksilver to a depth of several inches, thus preventing a greater extraction than from 45 to 52 per cent, while by amalgamation and concentration an extraction of from 80 to 92 per cent is secured.

Operations have been confined mostly to the Trippe mine. The work on this claim consists of three shafts, which have been sunk to a depth of 300, 120, and 50 feet, respectively. From the 300-foot shaft levels have been run at 50, 150, and 250 feet. From the 120-foot shaft a level has been run to connect with the 150-foot level from the 300-foot shaft, thus insuring an abundant supply of air. In all these openings ore is to be found. What is known as the low-grade ore—that running below $40—is run through the mill and concentrated, the concentrates being shipped to the smelter. Of this character of ore there is a large body, varying in width from 1 to 3 feet. The high-grade ore—that running over $40—is stacked and shipped direct to the smelter. This ore, varying in width from 6 to 18 inches, is found on all the levels. The richest body of ore is found in the 250-foot level. In width it varies from 14 to 18 inches, and is found for a distance of 100 feet (at which time this report is made), and assays $1,630 per ton. Every indication points to the continuation of this body of ore, and should it continue it will make the Trippe the largest gold producer in New Mexico. The ore is hoisted from this mine by a Fairbanks & Morse gasoline hoist on the 300-foot shaft and whims on the other two. These whims will be replaced by gasoline hoists in the near future.

Situated on the El Oro are the company's buildings, which consist of a hotel, store, corral capable of stabling 30 head of horses, the senator's private residence, and the bunk house. The latter has just been completed, and is unique in its arrangements. Every employee is supplied with an iron bedstead, mattress, and pillow. There are reading and toilet rooms, the former supplied with the latest periodicals and newspapers, and the latter with towels, soap, etc. Each occupant is assessed 10 cents per week, which defrays the expenses of the janitor and subscriptions to the magazines and newspapers. All the buildings are substantial and comfortable.

The improvements under way and contemplated are a schoolhouse, which may be used on Sundays for religious services, an electric plant, capable of furnishing power for 400 16-candlepower incandescent lights and 10 arc lights, and the enlargement of the corral.

John I. Thomson is general manager for the company and Peter Townsend the mine foreman.

SOCORRO COUNTY.

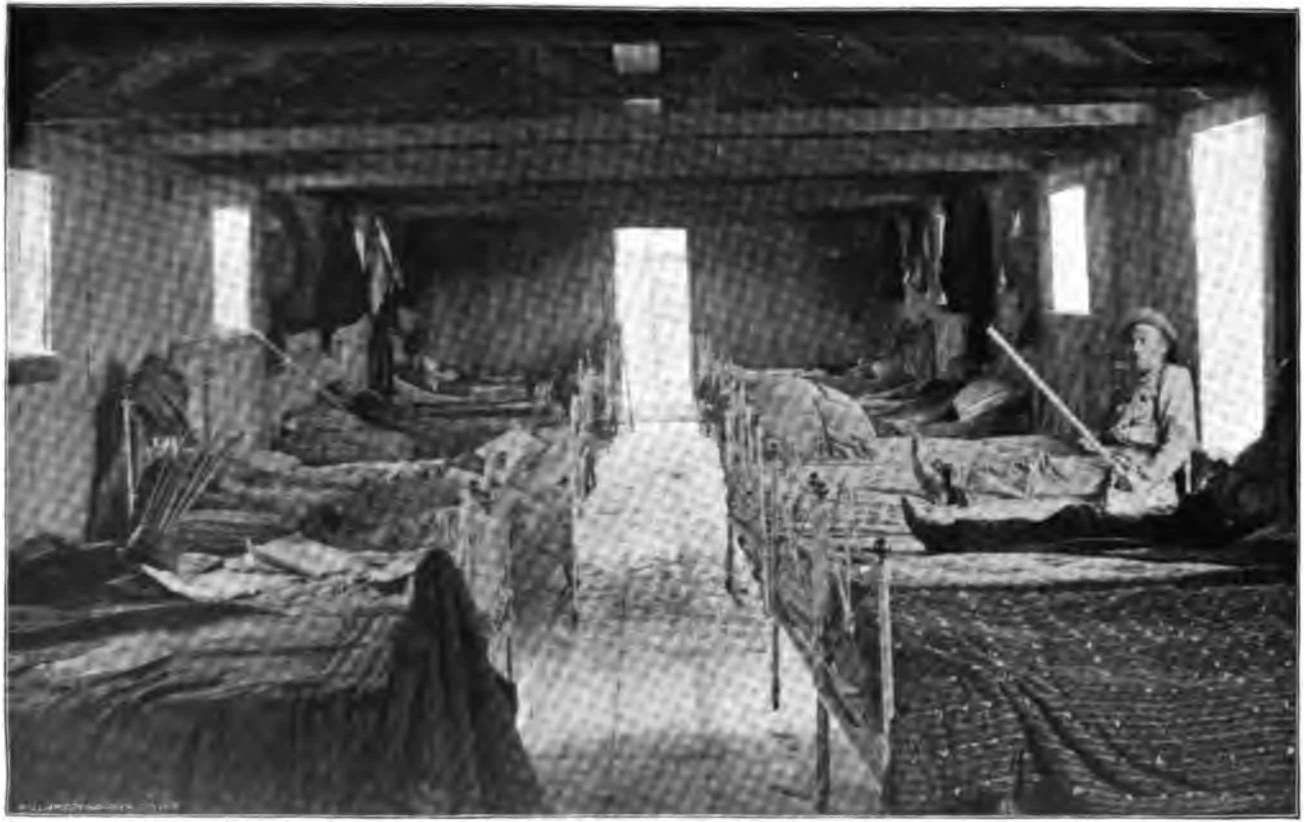
Socorro County is situated in the central portion of New Mexico, between the thirty-third and thirty-fifth parallels; is bounded on the north by Valencia County; on the south by the counties of Grant, Sierra, Otero, and Donna Ana; on the east by the counties of Lincoln and Otero, and on the west by the Territory of Arizona.

This is at present the largest county in New Mexico, containing approximately 10,000,000 acres of land, consisting of agricultural, grazing, mineral, coal, timber, and saline lands.

Under the present facilities for irrigation about 1,000,000 acres are available for agricultural purposes. Vast areas of excellent land for agricultural purposes are found on the east of the Rio Grande, extending from the eastern slope of the Serros del Pueblito, San Pedro, and Fra Cristoval mountains to the western slope of the Oscura, Burro, and San Andres mountains, covering an area of from 15 to 25 miles in width and 40 to 50 miles in length, the greater part of which might be reclaimed by means of a system of reservoirs for the storage of water. Equally large areas of as fine land as the sun ever shone on is found west of the Magdalena Mountains, in the valley situated between the Datil Mountains on the north and the San Mateo Mountains on the south, a large portion of which might also be reclaimed by means of storage reservoirs.

Estimated population, 19,000, of which approximately two-thirds are native born.

The following are a few of the principal points of importance in the county, to wit: Socorro, San Marcial, Magdalena, San Antonio, Kelly, Mogollon, Cooney, Graham, Alma, Frisco, Gila, Mangus, Luna, Sabinal, Lemitar, San Acacia, Polvadera, La Joya, and Paraje, of which Socorro, commonly known as the "Gem City," is the county seat and headquarters for the fifth judicial district, comprising the counties of Socorro, Lincoln, Chaves, and Eddy. Socorro has a population of 3,000 inhabitants, and is beautifully situated on a slight elevation or tablelands immediately adjacent to the Rio Grande Valley about 2 miles west of the river, at the base of the Socorro Mountains. The city owns and controls its own waterworks, the supply of which is acquired from the Socorro Mountain springs, about a mile above the city, and at an elevation sufficient to furnish any pressure that may be required for any and all purposes. Analysis of the water demonstrates the fact that the same is chemically pure. Principal resources are farming, fruit raising, mining, manufacture of brick, cattle and sheep raising. Climate excellent; is the headquarters for the furnishing of supplies to a large area of country tributary thereto. (The Socorro brickworks have the reputation of producing the best quality of building and fire brick in the West.) Socorro has two banks, three flourishing flouring mills, two weekly newspapers.



THE INTERIOR OF BUNK HOUSE, SENATOR ANDREWS'S MINE.

SAN MARCIAL.

San Marcial is also situated in the Rio Grande Valley, about 28 miles south of Socorro, and is a stirring, enterprising, up-to-date town of 1,500 inhabitants; division point of the Atchison, Topeka and Santa Fe Railway Company, and where the railway company repair shops and roundhouses are located; also a hotel; is headquarters for the furnishing of supplies to an extensive area of country tributary thereto, including the neighboring towns of Val Verde, Contadero, Old San Marcial, Cantarecio, Paraje, and Rosedale mining district. A modern flouring mill, owned by J. N. Broyles, is in operation day and night; one weekly newspaper, one bank. Principal resources are cattle, sheep, mining, fruit raising, and farming.

MAGDALENA.

Situated about 27 miles from Socorro is Magdalena, which is the terminal of the Magdalena Branch, operated by the Atchison, Topeka and Santa Fe Railway Company, and is one of the principal points in the county for the shipment of cattle and sheep, shipments of cattle for the year ending August 25, 1899, amounting to 24,387 head. Has a population of about 700 inhabitants. Principal resources are mining, smelting of ores, cattle, and sheep. Is headquarters for the furnishing of supplies to towns and ranches tributary thereto for a distance of 300 miles, including Springerville, Ariz. A 100-ton smelter, owned and managed by Capt. A. B. Fitch, is in operation day and night, and from the product of which has been shipped during the year ending August 25, 1899, 1,225,152 pounds of bullion. Amount of ore shipped during the same period, 1,020,000 pounds. At the present time new and important discoveries have been made in the Magdalena mining district, which will very materially increase the product from this place.

SAN ANTONIO.

San Antonio is situated 10 miles south of Socorro, in the Rio Grande Valley, along the main line of the Atchison, Topeka and Santa Fe Railway; has a population of 1,000 inhabitants within a radius of 2 miles; has three large general merchandise stores. Occupation and principal resources are farming, fruit raising, freighting, coal mining, cattle and sheep.

Eight miles east of San Antonio are situated the Carthage coal fields, owned and operated by Hilton & Co., of San Antonio. The coal vein is 5 feet thick, and of a superior quality for steam and coking purposes. It is hauled by means of wagon transportation to the railroad at San Antonio for shipment. This place is also the headquarters for furnishing and forwarding supplies to towns and ranches east of the Rio Grande, including the town of Whiteoaks. The valley lands are very fertile and considered as good as any in the valley, a portion of which from experiments have been found to be especially adapted to the culture of canaigre root and sugar beet. The Bosque del Apache grant is situated 3 miles south of San Antonio, and contains something over 12,000 acres of choice valley land, which at present is not under cultivation, but would furnish an excellent opportunity for capital desiring to engage in the culture of sugar beet and the refining of sugar. Similar opportunities can be found at various places along the Rio Grande Valley; in fact, choice lands suitable for the culture of sugar beet can be found adjacent to any of the above-named towns in the valley. Water supply for irrigation purposes is derived from the Rio Grande through the medium of community irrigation ditches.

MOGOLLON.

This is one of the oldest mining camps in the county, having been discovered in 1879. Has several producing and dividend-paying mines. Population about 750.

FRISCO.

Frisco is situated in the western portion of the county, on the Frisco River. Principle resources are farming and stock raising. Population about 500.

MINES AND MINING DISTRICTS.

The following are a few of the principal mines and mining districts in the county: Cooney district, a portion of the Black Range district, Dry Creek district, Sullivan's Hole district, Cat Mountain district, White Water district, Iron Mountain district, Magdalena district, Socorro mining district, Lemitar district, Kelly mining district, Rosedale mining district, Water Canyon mining district, Ladrones mining district, La Joya mining district, Oscura mining district, Hansonburg mining district, Burro mining district, San Andres mining district.

In the Cooney district are located and in operation several mines, stamp mills, etc., the Cooney mine or Silver Bar having a production of several hundred thousand dollars. Character of ore: Gold, silver, and copper, a portion of which is saved on the plates and the balance by concentration. The Queen, owned by a Galveston company, has considerable development and also a modern 10-stamp mill, amalgamation process.

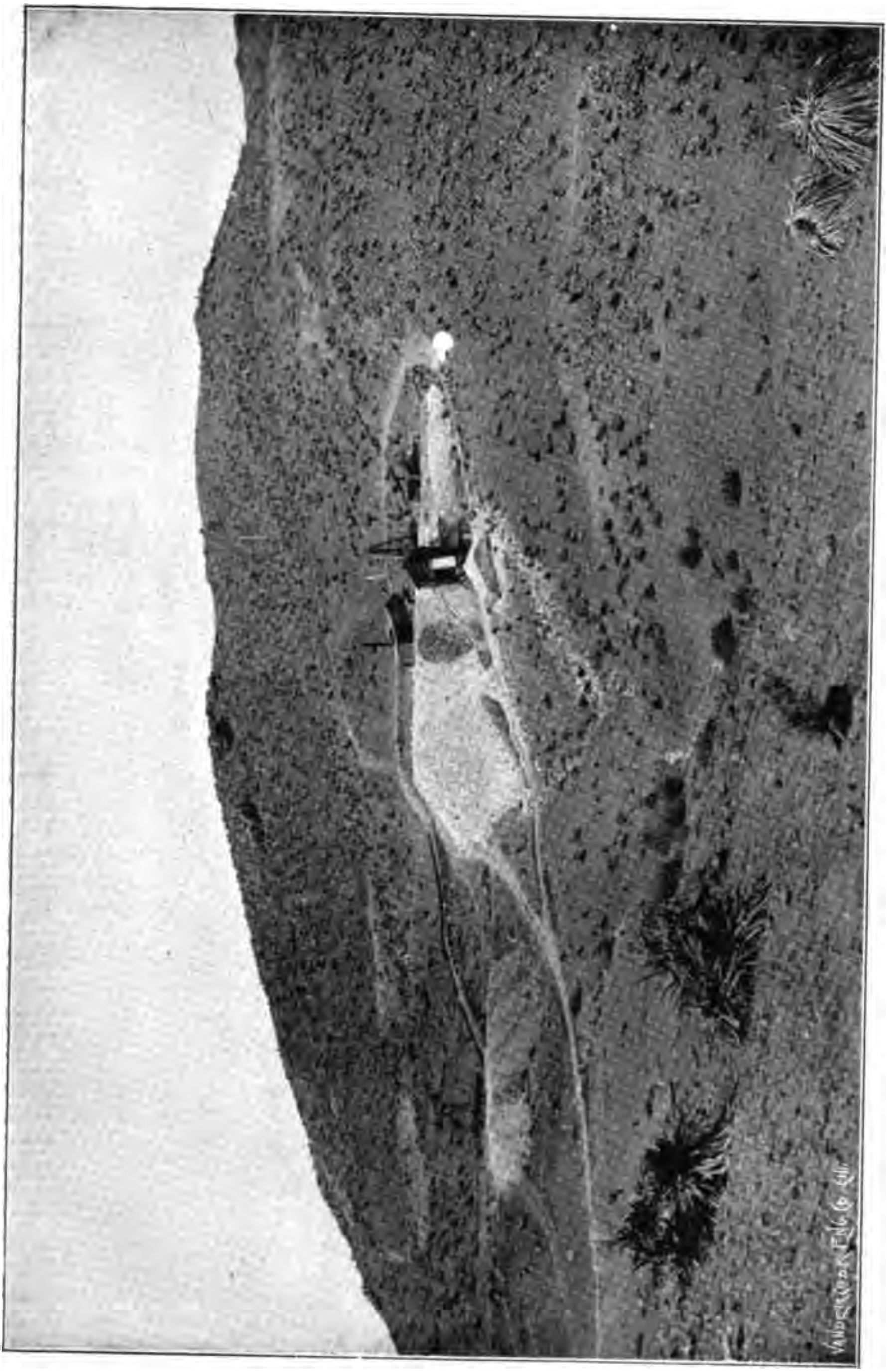
The Florida group, owned by W. J. Weatherby, has several hundred feet of development; a gold free-milling proposition; pay-ore streak ranging from 18 inches to 3 feet in width; values, $20 and upward. A splendid opportunity for the investment of capital.

The Little Fannie mine, situated about one-half mile from the town of Mogollon, has produced thousands of dollars; is considered one of the best paying mines in the district; has attained a depth of something over 300 feet. Character of ore, milling. Values saved by amalgamation. Pay ore from 5 to 20 feet thick; values, $15 to $40, saving about 75 per cent.

Maud S, situated in the town of Mogollon, has produced $675,000; has a 10-stamp mill. Attained a depth of 375 feet below creek level. Pay-ore streak, 18 inches to 3 feet. Values saved by amalgamation and milling process.

Eberle mine, situated in Mogollon, is one of the best propositions in the camp, has several hundred feet of development, and is reported to have sufficient ore in sight to run a 50-stamp mill for a term of five years. The property has been in litigation for several years, during which time the owner has been constantly developing with a view to erect necessary machinery thereon for the reduction of ores, which will probably be executed in the near future.

Last Chance mine, situated in the Last Chance gulch, one-half mile from the town of Mogollon, has produced $160,000, has a 15-stamp



GOLD MINE, SIERRA COUNTY.

mill, and was recently sold to English capitalists. Is working day and night and reported to bid fairly well toward becoming one of the heaviest producers in the camp. The vein is immense, varying in width from 10 to 30 feet; average value about $10, some of the ore running up into the hundreds.

Deep Down mine, situated on opposite side of the canyon to the Maud S, on the same lead, has a 5-stamp mill, has produced $65,000, and has a bright future.

The Confidence mine, one of the largest and most fully developed properties of the camp, has an estimated output of something over $1,000,000; has a 30-stamp mill run by water power; has attained a depth of over 700 feet. The mill is situated on White Water.

Black Range district. About one-half of this district is situated in Socorro County, the balance in Sierra County. The ores of the Black Range district are high grade, as has been fully demonstrated in the past by shipments heretofore made. A ton sample shipped from the Iffie group gave returns of $211, of which $180 was in gold. An average of 10 samples from the same property, taken by a conservative mining expert, gave returns showing average values of 6⅜ ounces gold and 90 ounces silver.

The Great Republic group is also situated in this district, and upon careful examination demonstrates the fact that it is capable of becoming one of the heavy producers of this region.

The Ivanhoe has also produced some very rich ore.

The Silver Monument, at the head of Chloride Creek, has a production record of something over $100,000. South of Chloride Creek is the United States Treasury mine, showing an ore body of 20 feet at the 100-foot level, averaging $10 per ton in gold.

South of Hagan's Peak are the Colossal and Midnight, the former having produced $70,000. Another one of the heavy producers is the Readjuster, a copper and gold proposition, owned and controlled by Gen. Quinby Vance. Immense deposits of iron ore, from 50 to 500 feet in width and running from 58 to 65 per cent iron, are found in different portions of the district, and many other properties equally meritorious. This district will some day in the near future be the Cripple Creek of New Mexico, the possibilities of which are far greater than the expectations of even the most sanguine friends of the district.

Dry Creek district is situated in western Socorro County, about 15 miles from the town of Mogollon. Rich copper and lead ores have been found in the district, one of the promising prospects being owned by Dan Bechtol; also "tellurium ores," running up into the thousands. The district is in need of development. There is an abundance of running water. There are also some very promising gold prospects owned and controlled by Mr. Bachellor and associates, of Graham, N. Mex. With development the district has a promising future in store.

Sullivan's Hole district is situated in the San Mateo range, and some very promising gold claims have been located and some mining done. The district, however, is in need of development and would furnish a good field for prospectors and capital. Nearest railroad station is Magdalena.

Cat Mountain district is situated about 10 miles from Magdalena, and is systematically one of the largest free-milling gold propositions in New Mexico. The property is equipped with a steam-hoisting plant, and shows 25,000 tons of ore in sight that will mill $10 per ton above the 100-foot level. Below the 100-foot level the ore body is increasing in size and value as depth is attained. There are other promising prospects that might do equally as well with development.

Rosedale mining district is situated about 40 miles west of San Marcial in the San Mateo Mountains. The character of the ore is gold. One of the principal producers is the property operated by the Martin Company, which has paid handsome dividends to the stockholders for some time and is daily becoming more valuable with development. Another promising property is a gold proposition owned and operated by the Hanna Bros. & Bell, of San Marcial. Values in this district seem to increase with depth. The ore is mostly free milling, the tailings being saved by concentration, or might be treated with cyanide.

Iron Mountain district is situated 6 to 10 miles north of Cat Mountain. Nearest railroad station is Magdalena. This district is undeveloped. Has several promising prospects, showing values in gold, silver, and lead.

Magdalena district is situated adjacent to Magdalena. Gold, silver, and lead properties have been successfully worked for several years. Lead carbonates are found in many of the mines in paying quantities. North end of the district is principally gold.

Kelly mining district is situated immediately south of and adjoining the Magdalena district. In the district is situated the town of Kelly, a prosperous mining town. Nearest railroad station is Magdalena, only 3 miles distant. The Kelly district is one of the oldest in the county, and has probably produced more values than any other district in the county. The ores are principally lead carbonates and galena; there are also one or two promising copper properties. One of the principal copper propositions is operated and owned by Walter Cook. The "Graphic" mine is situated in this district, and has been producing ore and paying dividends for the past fifteen years. The property is now being operated under the efficient management of Capt. A. B. Fitch, and is reliably reported as doing better than at any time in its history. Captain Fitch is also operating, in connection with the mine, a hundred smelter. Perhaps the most forcible testimony as to the worth of this property is the fact that during the cloudy days of 1894 and 1895, when lead sold as low as $2.40, the smelter and mine hardly ever lost a shift. The lead carbonates carry some gold and silver, averaging from $2 to $10 per ton.

The "Kelly" mine is situated south of the "Graphic" and has produced thousands of dollars. The mine is at present operated under a lease and ore is being steadily shipped.

"The Juanita" is another good lead property, but is not being worked at the present time on account of being in litigation, is a splendid property, and will be one of the heavy producers as soon as the litigation is settled.

East of Kelly is found the "Hard Scrabble," which has a good production record. South of Kelly are found the "Mary" group, also the "Imperial;" next the "Young America," the last named having shipped considerable ore, the values being found in carbonates running from 30 to 60 per cent lead, and also some silver and gold.

Adjoining the "Graphic" is found a promising lead prospect owned by C. C. Clark, of Kelly. In the immediate vicinity is also found the "Ambrosia," "Yellow Rose of Texas," operated or owned by A. D. Coon, of Socorro, and numerous other prospects which would no doubt be equally meritorious with necessary development.

The Water Canyon mining district is still in its infancy, although prospecting has been carried on for some time. Ores: Gold, silver, lead, and copper. One of the principal properties is the Timber Peak, situated near Six Mile. The same is being operated under the direction of Richard Sanders, of Philadelphia. This is an enormous vein, in fact, a mountain, of low-grade gold ore. Values saved by concentration. The company have recently erected a large mill at an approximate cost of $50,000 for the purpose of reducing the ores. Values are found in iron sulphides. In Water Canyon, about 4 miles from the Timber Peak, is found the "Buckeye," operated by the Buckeye Gold and Copper Company, nearly all of the stockholders of which are residents of the Territory. The values are principally gold and copper. The ores are sulphides and oxides of copper. In this property water level was encountered 125 feet below the surface. The values of the ore are very materially increasing with depth, the character also changing at water level from a decomposed, honey-combed quartz to a copper sulphide, the ore shute from which shipments are being made so far as uncovered ranging from 2 to 5 feet in thickness. This property has also an immense vein of low-grade ore that would pay to treat on the ground. Formation: Lime and porphyry, hanging-wall lime, foot-wall quartzite. The property is equipped with up-to-date steam hoists, mine pumps, etc., and under the efficient management of the president of the company, Mr. C. T. Brown, and Lee Terry, mine foreman, the property is expected to become in the near future one of the heavy producers of the district.

In Copper Canyon, a few miles distant, is found the Driscoll property. This is a gold proposition and one of the most promising in the district. It has an immense contact vein of low-grade milling ore. Negotiations are in progress with Eastern capitalists for the purchase of the property. This proposition certainly affords an encouraging field for capital seeking investment. There is an abundance of water and an ideal mill site. The property is owned by Dr. Driscoll, of Socorro.

Beyond Dark Canyon in the same district are found a number of paying lead properties, one of the principal mines being owned and operated by Col. W. S. Williams, of Socorro. This mine is known as the "Bell," and at the present time is making regular shipments. The ore is galena, running from 30 to 65 per cent; also carries from $2 to $20 in silver and gold. In the same canyon and district adjacent to the Bell is found another valuable lead property, owned by Mr. Mitchell. The property is being worked under a bond and lease, and has been shipping continually during the past three months; character of ore the same as the Bell. There are numerous other valuable and encouraging prospects that with development will prove to be steady producers. The Water Canyon district is situated 15 miles southwest of Socorro, and is considered by mining men to be one of the best fields for investment in the Territory. As above stated, the district is in its infancy, but all developments so far made have been very satisfactory. The veins seem to be permanent and values universally increase with depth. Abundance of water and timber for mining purposes.

Socorro mining district is situated immediately west and adjacent to Socorro. Character of ore: Gold and silver. This district is also one of the old districts in the county, and has a production record exceeding $1,000,000. The "Torrence," a silver proposition, is not being worked at present, and has large bodies of low-grade silver ore; principal values, silver. Next to the "Torrence" is the "Merritt," owned by a corporation, the principal stockholder of which is A. D.

Coon, of Socorro. This property has an immense body of milling ore (silver) that will average under the present price of silver about $9 per ton. Farther up the mountain is the "Glasson property," a gold proposition, from which some very rich ore has been extracted. This property is considered by mining men to be a very promising proposition. It is owned and worked by Mr. Glasson, of Socorro.

Lemitar district is undeveloped. Ores are copper and lead. Some very good lead carbonate ores have been discovered lately, and considerable work is being done at present. This district is situated about 10 miles north of Socorro.

Ladrones is situated in the Ladrone Mountains, about 25 miles northwest of Socorro. Ore is copper and some silver. The district is undeveloped, but some good copper prospects have been discovered.

Lajoya is comparatively a new district, but active and scientific mining has been going on under the direction of Lon Jenkins, E. A. Levy, and associates during the past year and a half, with very encouraging results. Ores: Gold, lead, and copper. A number of shipments have been made which have paid for developments. The ore is a high grade, and will bear transportation and smelter charges and still leave a profit to the owners. Nearest post-office, Lajoya, N. Mex. The mines are situated on the east side of the Rio Grande, about 5 miles southeast of Lajoya and 2 or 3 miles from the Atchison, Topeka and Santa Fe Railway.

Oscura mining district is situated about 45 miles east of the Rio Grande and the same distance from the railroad. Ores: Copper and lead. Some prospecting has been done and large quantities of low-grade ore have been discovered, but will not stand transportation to the railroad.

Hansonberg district shows copper and some gold and silver. Considerable development has been done in this district, and some very promising copper properties have been partially developed, the principal one of which is owned by A. Hogwall, of San Antonio, N. Mex., and C. Blanchard, of Las Vegas. The ore is very high grade and shipments have been made showing satisfactory returns. Distance from mine to railroad about 35 miles; nearest post-office, San Antonio.

Burro mining district is situated about 50 or 60 miles from the railroad, on the east side of the Rio Grande. Ores principally copper. Some development has been made and very good quality of ore taken out. The greatest drawback is the scarcity of water. It is probable, however, that water might be acquired by boring wells.

San Andres mining district is situated about 30 miles east of Lava Station. Ore: Copper. Considerable work has been done in this district, and at present copper ores are being shipped to El Paso smelter. The veins are good size, and ore running from 13 to 20 per cent is found in paying quantities. Some of the principal properties are owned by Mr. A. T. Harrison, the same being now operated under bond and lease. This is considered one of the richest copper districts in the county.

TIMBER.

The principal timber in the county is situated west of the Rio Grande. Good heavy pine timber is found in various places in the several mountain ranges. The Flagstaff (Ariz.), timber belt extends through western Socorro County. In the Mogollon range perhaps is found the best and largest timber belt in the county, covering an area from 5 to 20 miles in width and 20 to 30 miles in length. We find another belt of the same timber in the Friscos—Elk Mountains, Black Range, and San Mateo ranges—suitable for commercial and building purposes; also in the Magdalena and Gallina ranges, but not so large or of as good quality as some of the aforesaid ranges. One million acres would probably be a conservative estimate of the area of land covered with heavy pine timber suitable for sawmill and commercial purposes in the county. Very little cutting has been done, except the limited quantities used for mining purposes, erection of reduction works, etc., most of the timber being located a considerable distance from the railroad, and will not stand wagon transportation.

COAL.

Coal is found in the western portion of the county, which is supposed to be the Gallup coal belt. On account of no railroad facilities the coal is not being worked. The veins are from 6 to 7 feet thick. Coal is also found within 15 miles of the Magdalena. The Carthage coal fields are situated east of the Rio Grande, mention of which has been made heretofore.

SALINE LANDS.

Near the western border of the county are situated some salt lakes with an inexhaustible supply of a very good quality of salt, the product of which is being used by the mills at Mogollons, Graham, and Cooney. Some salt is also peddled around and used for domestic purposes. There are also some salt beds near the San Andres mountains, but not as good quality as the first-mentioned salt. Distance from railroad about 175 miles.

VALUATION.

According to tax rolls, which generally show about one-third the actual valuation, the property of the county is valued at $4,700,000; the bonded indebtedness approximately is $175,000.

CATTLE AND SHEEP.

The estimated number of sheep in the county is 200,000; number of cattle, 100,000 head; also several thousand head of horses.

RAILROADS.

The Atchison, Topeka and Santa Fe Railway Company owns and operates 107.76 miles of main-line track and 19.11 miles of side track; also division point and repair shop, round houses, etc., at San Marcial.

The county, generally speaking, is in a prosperous condition, caused by the rise in values of the products of the county, especially in cattle, sheep, wool, lead, and copper, etc.

THE SOCORRO FIRE-CLAY COMPANY.

The Socorro Fire-Clay Company is one of the best known corporations in the Territory and stands in the first rank of New Mexico industries. It has been gradually increased in capacity and improved in the quality of the articles manufactured, until it stands now as the best, if not the largest, fire-clay works in the Southwest. When running full capacity it gives employment to 35 men and ships 150,000 brick per month. It has two late-improved brick kilns with a down draft, having a capacity of 50,000 and 60,000 brick, respectively.

The fire-clay brick for smelter furnaces is made by hand into all shapes and sizes and of two different grades. They are really fine, and are growing in popularity with the different smelters throughout the country. Their building brick is made in three colors, buff, white, and red, and has been used extensively in the building up of Albuquerque and El Paso.

A very careful analysis of the clays surrounding Socorro has been made, and no less than 350 different kinds, suitable for making brick, pottery, tiling, sewer pipes, crucibles, scorifiers, mufflers, and almost everything requiring a fine grade of fire or brick clay.

This growing and important institution, like many others in the Territory, has succeeded only by good management and strict attention to business, and its success is now established beyond all doubt.

TAOS COUNTY.

The agricultural, mineral, and other resources of Taos County are of such a diversified character it will be impossible for me to give more than a brief outline of their nature and importance in the space assigned me.

Taos County might aptly be termed a paradox in civilization. It is the oldest and newest portion of the United States. Here, according to the traditions of our Pueblo Indians, were homes and farms five hundred years ago. Before Columbus discovered this country a portion of the Taos Valley was under cultivation, and before the *Mayflower* anchored off Plymouth Rock houses of adobe were clustered about the mouth of the Pueblo Canyon that sheltered the forefathers of some of the present residents of the Taos Valley. The houses of that period were replaced by the present "Pyramids of Taos," which, unlike those of Egypt, were built for homes for the living and not for the dead. The Pueblo Indians, without doubt, were the first home builders and farmers in America that still exist to emphasize the claim of their fathers to that distinction. Notwithstanding the fact that this is the oldest farming community in the United States, there are thousands of acres in this valley of as fine land as the sun ever shone on, that no doubt has the same growth of sage brush that covered it when the Pilgram Fathers landed on this continent. In many places the primitive methods prevail in the planting and harvesting that were common a thousand years ago, notably the wooden plow, the sickle, and the thrashing floor; yet, with all that, the most beautiful crops are the rule.

The mineral resources furnish a parallel to those of agriculture. The first authentic record of the production of gold, in what is now the territory of the United States, was the production of gold from the placers in the Taos Valley, nearly two hundred years ago, when this country was dominated by the Spanish. The records of large shipments of gold to the City of Mexico are in existence to-day, and the ore-placer washings, extending for miles along the Rio Lucero, may be seen to-day. Ruins of Old Arastas that were used, perhaps, centuries ago for the extraction of the precious metals can be found to-day in the mountains; yet, without doubt, Taos County has more square miles of mineral territory that remains untouched by the prospector's pick than any county in the great mineral belt of the West. Surely it is a paradox. Progress in agriculture is noted during the past year. Improved machinery and improved methods are being introduced by the more progressive farmers. The reaper is taking the place of the sickle, and handsome carriages by the score are to be seen where the cart and wagon were in use before.

Notwithstanding the excessive drought this season, many fields of wheat will average 40 bushels to the acre, and there is the greatest abundance of agricultural products.

No finer fruit is grown anywhere than here in the Taos Valley. The orchards have come to stay, as failures of a fruit crop are rare indeed, and in some localities entirely unknown.

The greatest difficulty that the farmer in the Taos Valley has to encounter is the market for his surplus. Before the advent of railroads in the western country this valley was the granary of the southwest, and a portion of Old Mexico drew its supplies from here, but in recent years he has been compelled to depend upon a local market that was limited, and this curtailed production. However, the local market is being stimulated by the development of the mines in the adjacent mountain ranges, and another ray of hope from the prospects of a railroad in the near future is stirring the energies of the farmer. A railroad that will furnish a southern outlet, thus reaching the legitimate market for the flour and grain, will make this valley second to none in point of productiveness. The money for this enterprise is already assured, if the details of connection and right of way can be satisfactorily arranged. It is sincerely hoped that before the end of the next year the whistle of the locomotive will be heard in this valley and a new era of prosperity will have begun. With the coming of a railroad, new industries will be developed; this valley will become the feeding ground of northern New Mexico. The thousands of sheep and cattle now shipped to Colorado feeding points will be fattened here. The modern flouring mills will take the place of the old water mills, and reduction works will utilize the great veins of low-grade ores that are now practically valueless on account of the lack of transportation.

MINING INDUSTRY.

Considering the lack of capital, rapid strides are being made in the development of the mineral resources of this county. During the present season one new mill has been placed in operation, one is nearing completion, and the third is contracted for. These will have a combined capacity of over 100 tons of ore daily. In addition to that there are three new shipping mines which have been opened, and more would be listed as producers if capital would furnish local treatment for the ores. Millions of tons of low-grade ores are already exposed by recent development work and scores of low-grade veins remain to be opened. What a magnificent field for genius and capital. Genius to devise and capital to construct the plants for the profitable extraction of the precious metals from nature's treasure vaults in the Taos Mountains. However, capital is no longer ignorant of our great mineral resources, as more Eastern money has been invested in the mines of this county during the past year than in all previous history, but the field is practically unlimited, as this county contains over 900 square miles of known mineral territory. It has the advantage of good roads, timber, and water, and is lacking only in transportation. With the present rate of development Taos County in the near future will be second to none in the production of precious metals. This valley with its 300 square miles of the finest agricultural and fruit land, at an altitude of 7,000 feet, protected on three sides by high mountain ranges, and watered by seven rivers, with a climate that is unsurpassed is destined to become the home of 100,000 people. Nature has given it the soil, the sunshine, the scenery, the pure air, and sparkling water; it remains but for man to improve, beautify, and adorn nature's work for this valley to become what the Indian legend claimed for it in the past, "The Paradise of America."

UNION COUNTY.

The most northeastern county of the Territory is Union, which was created in 1893. It is 123 miles long by 55 miles wide from east to west. It is mostly prairie land, but in the northern portion is a branch of the Raton Mountains. The land is chiefly used for grazing purposes, but along the many streams considerable farming is done, the soil being well adapted to the raising of nearly all the small grains and vegetables.

ALTITUDE AND CLIMATE.

The altitude is about 5,000 feet, which is an excellent average for all persons having pulmonary trouble combined with a weak nervous system, since the climate in this county is equal to almost any portion of the Territory for all pulmonary affections. The air is dry and crisp, is neither too hot in summer nor too cold in winter even for the chronic invalid.

TOWNS AND VILLAGES.

Clayton, the county seat, is the largest town in the county, and is situated on the Colorado and Southern Railway (formerly known as the Union Pacific, Denver and Gulf), in the northern half of the county, and about 10 miles west of the Texas line. The population of this town is between 700 and 1,000. It has an excellent water system and electric light plant, modern court-house costing $20,000, and fine public school building costing its progressive taxpayers $10,000, also a modern hotel, costing $20,000 when finally completed. The school census of this town shows 350 children of school age.

Folsom is situated in the northwest portion of the county, on same line of railway, is the second railroad town of importance in the county, and contains nearly as many people as Clayton. Formerly the United States land office was located here, but was removed to Clayton. Folsom has an altitude of over 6,000 feet and nestles near the mountains, surrounded by springs whose waters contain valuable medicinal qualities, and this town is becoming quite a health resort for many people from Texas and other States who come here during the summer season. Folsom has a fine public school building, built at a cost of $7,000; two very good hotels, and many stores and business houses. Folsom, like Clayton, has a large trade from the surrounding country, extending as far as 150 miles.

Other towns having post-offices, but off of the lines of railroad, are Veda, Capulin, Gallegos, Baca, Genova, Tequesquite, Albert, and many others of minor importance.

CATTLE.

Union County has 60,000 head of cattle within its borders. Many, if not the large majority, are well-graded cattle of the Hereford, Jersey, shorthorn, and other fine breeds.

SHEEP.

Three-quarters of a million sheep are now grazed in this county, many being Merinos and other well-known and valuable breeds. Scab is unknown among the sheep men here, and but few of these animals are lost here during the winter storms. The price of wool, sheep, and cattle having rapidly enhanced within a year, and these constituting the principal capital of the citizens of this county, the wealth of the county has kept the same pace.

SCHOOLS.

In all the school districts of the county the terms run from five to nine months, and every child within the confines of the county has the opportunity of acquiring at least a good common school education.

COAL.

Good coal is found in the northern part of the county, but owing to the nearness of other coal mines to the present railroad line no mines of coal have been developed, except such as the near-by settlers may do when removing coal for their immediate use.

HOMESTEAD LOCATIONS.

About two hundred homestead filings have been made at the Clayton land office during the past year, nearly all of which have been within this county, and while there is yet much valuable Government land here the indication is that the land containing living water will soon become individual property.

COST OF LIVING.

Exceptional inducements are offered the homeseeker in this county. Should he wish to engage in ranching, he may select his homestead from the thousand of acres of Government land at a cost of $16 for his 160 acres. He will find the expense of living not materially different from that in the East. Flour costs $2.80 per hundred; meats and grains are cheaper than they are in the far East, and groceries at prices charged in Denver or Kansas City, and in this climate of sunshine, after a few years, the summer heat of eastern districts, unknown in the arid portions of the West, and the rigors of severe winters of the Orient will hold out no inducement to him to leave the country of his adoption.

RAILROADS.

Union County is crossed by the Union Pacific, Denver and Gulf Railroad, a road running from Denver, Colo., to Fort Worth, Tex., a distance of 780 miles, which enters the county at a point near Folsom and leaves it at Texline, Tex. This road, which was built in 1888, has during the past five years improved greatly its roadbed and rolling stock until it has become one of the best roads in the West. Its passenger service is, because of its new and excellent coaches and fast-running trains, worthy of particular mention, and the traveler, leaving New Mexico one morning, reaches by close connections the city of Denver the same afternoon and Chicago the following evening. The road has, in way of improvements in Union County for the first six months of 1898, laid 10 miles of 65-pound steel in place of

52-pound rails; has fenced 41 track miles, or 82 linear miles; has ballasted 25 miles of roadbed 15 inches deep with cinders, besides building sheep-dipping plants at both Folsom and Clayton with a capacity of 10,000 sheep daily.

A new and roomy station has also been erected at Clayton, equipped with electric lights. This road is a most patent medium in moving New Mexico cattle to northern ranges, and thousands of head are driven annually from the Pecos River district, in southern New Mexico, to Clayton and Folsom, where they are shipped to Wyoming, Montana, and Eastern markets. In the fall of the year no less than 200,000 sheep are also carried by the Denver and Gulf road to Colorado feeding points.

POPULATION.

The population of Union County is about 7,000, almost without an exception prosperous and enterprising. Never in the history of the county has there been an appeal for assistance because of poverty by the inhabitants, nor is a pauper within the confines of Union County.

Neat residences, well kept, impress the visitor at once with the prosperity of Union County in general.

VALENCIA COUNTY.

Valencia County is one of the largest and oldest counties in the Territory of New Mexico; it reaches from the Arizona line on the west to the line of Guadalupe County on the east, and has a total area of 5,621,760 acres. Of this area about 3,000,000 acres make good pasture land, 1,000,000 acres are irrigable and fit for agricultural purposes, and about 750,000 acres are good timber lands.

At the present time there are at least 25,000 acres under cultivation in the county, of which a very small proportion is cultivated without irrigation.

The population of Valencia County is about 15,000 inhabitants, almost without exception prosperous and enterprising. Never in the history of this county has there been a pauper within it, and for law and order it is not surpassed by any county in the Territory, there not being a single person in the county jail, nor has there been any for the past year.

The county seat is Los Lunas, situated on the Atchison, Topeka and Santa Fe Railroad, 21 miles south of Albuquerque. Belen may be mentioned as another of the principal towns of the county, in the Rio Grande Valley, it having all modern improvements, including a fine roller mill, elegant stores, schoolhouses, and churches.

Valencia County is traversed by both the Atchison, Topeka and Santa Fe Railroad and the Santa Fe Pacific Railroad, the former going down the Rio Grande Valley and the latter traversing the western portion of the county into Arizona.

SCHOOLS.

Valencia County compares favorably with every other county in the Territory as to its school facilities, and while it may not have as fine edifices as in more pretentious counties, the average length of the school term is eight months in the year, and there is hardly a school district but what has plenty of funds at its command.

COAL AND MINERALS.

Coal has been found in several sections of the county, both east and west, and is of an excellent quality. In the western part of the county a good quality of onyx has been discovered. Large deposits of copper may be found in the eastern section, and gold and silver mines have been found in both the eastern and western sections of the county while in the Rio Puerco Valley there are some large beds of gypsum and a superior quality of building stone has also been found.

FARMING.

The largest amount of farming done in this county is confined to the valley of the Rio Grande, which river flows from north to south through the center of the county, although there are about 10,000 acres of land cultivated in the eastern and western portions. The soil of the Rio Grande Valley is extremely rich, and is being made better year by year by the application of river sediment which is brought onto the land by means of irrigation.

The principal products of this county are wheat, corn, oats, alfalfa, beans, and a large variety of fruits. Apples, peaches, and grapes grow to perfection in the lower valley. Grapes are grown in large quantities, and not only have we the justly celebrated Mission grape, but also several other varieties, as the Tokay, Sultana, Concord, Muscat, Gro Colmers, etc., which find a ready market at various eastern points.

The wheat grown near Los Lunas took the first prize at the World's Fair at Chicago over all competitors, and oats that were grown near Belen took the second prize, Russia taking the first.

Alfalfa crops bring good returns, and when properly handled produce from 1½ to 2 tons per acre at each cutting, and generally four cuttings are had each year, and ready sale, at good prices, is obtainable for all that can be produced.

On the western mesas of the county canaigre root is found in abundance, and as the demand for this root increases from year to year, for tanning purposes, an important industry will be developed in that line in the course of a few years.

Sugar beets have been planted in a small way in different parts of the county, and tests of them have given satisfactory results as to percentage of sugar, which is greater than that of a similar product grown in California, and careful estimates of which give indications of a yield of about 30 tons to the acre. As soon as a sugar factory can be established in the valley of the Rio Grande, a large portion of the farming land of the county may be devoted to beet raising.

STOCK.

In this county there are about 400,000 head of sheep, 25,000 head of cattle, and over 5,000 head of horses. The western as well as the eastern part of the county affords splendid pasture for stock whose owners, under the present prosperous conditions of the sheep and cattle business, are growing rapidly rich.

VALUATIONS.

The total assessed value of taxable property is $2,186,509.26; the debt, including all bonds issued, amounts to $106,982, and the rate of taxation is low.

THE PRESS.

Of the 19 counties in New Mexico, newspapers are published in 16. Cities, towns, and villages in which papers are published number 31, of which 15 are county seats. Of the 56 papers published in New Mexico 5 are daily, 1 triweekly, 47 weekly, and 3 monthly.

Politically the papers are divided as follows: Republican, 20; Democratic, 18; religious, local, etc., 11; independent, 8. The papers, particularly the dailies, have large circulations and are influential in their respective communities.

Much of the development of the Territory is due to the energy and enterprise of the newspaper men, which has been a labor of love, for in New Mexico, like in many other States and Territories of our Union, the newspaper business is not, from a purely financial standpoint, a lucrative one.

Following is a list of the newspapers printed in New Mexico:

Alamogordo, Otero County:	
Alamogordo News	Republican.
Albuquerque, Bernalillo County:	
Abogado Cristiano Neo Mexicano (Spanish and English)	Methodist.
Bandera Americana (Spanish)	Republican.
Citizen	Republican.
Citizen (weekly)	Republican.
Morning Democrat	Democratic.
News	Independent Republican.
Nuevo Mundo (Spanish)	Independent.
Aztec, San Juan County:	
San Juan County Index	Independent.
Bland, Bernalillo County:	
The Herald (Weekly)	Independent.
Cerrillos, Santa Fe County:	
The Rustler	Local.
Chloride, Sierra County:	
Black Range	Republican.
Clayton, Union County:	
Enterprise	Republican.
Union Democrat (English and Spanish)	Democratic.
Deming, Grant County:	
Headlight	Democratic.
East Las Vegas, San Miguel County:	
Optic (daily)	Silver Democratic.
Optic (weekly)	Silver Democratic.
Voz de Pueblo (Spanish)	Independent.
Eddy, Eddy County:	
Current	Democratic.
Pecos Valley Argus	Independent Republican.
Elizabethtown, Colfax County:	
New Mexico Miner	Silver Democratic.
Farmington, San Juan County:	
San Juan Times	Democratic.
Folsom, Union County:	
Independent	Silver Republican.
Gallup, Bernalillo County:	
Gleaner	Independent Democrat.
Hillsboro, Sierra County:	
Sierra County Advocate	Democratic.
Labelle, Taos County:	
Cresset	Independent.
Lascruces, Donna Ana County:	
Donna Ana County Republican	Republican.
Independent Democrat	Democratic.
New Mexico Collegian (monthly)	Collegiate.
Rio Grande Republican	Republican.
Southwestern Farm and Orchard (monthly)	Agricultural.
El Tiempo (Spanish).	

Las Vegas, San Miguel County:	
Independiente (Spanish)	Republican.
Optic (see East Las Vegas).	
Revista Católica (Spanish; edited by Jesuit fathers)	Catholic.
Stock Grower and Farmer	Stock and agriculture.
Lincoln, Lincoln County:	
News (English and Spanish)	Democratic.
Lordsburg, Grant County:	
Western Liberal	Republican.
Mora, Mora County:	
Anciano (Spanish)	Protestant.
Raton, Colfax County:	
Range	Republican.
Reporter	Democratic.
Red River, Taos County:	
Mining News	Independent.
Roswell, Chaves County:	
Record	Democratic.
Register	Independent.
San Marcial, Socorro County:	
Bee	Republican.
Santa Fe, Santa Fe County:	
Boletin Popular (Spanish)	
New Mexican (daily)	Republican.
New Mexican (weekly)	Republican.
Nuevo Mexicano (Spanish)	Republican.
Silver City, Grant County:	
Eagle	Democratic.
Enterprise	Republican.
Independent	Independent Democrat.
Socorro, Socorro County:	
Chieftain	Republican.
Industrial Advertiser	Democratic.
Springer, Colfax County:	
Colfax County Stockman	Democratic.
Tulerosa, Donna Ana County:	
Chief	Republican.
White Oaks, Lincoln County:	
Eagle	Democratic.

GAME AND FISH IN NEW MEXICO.

In the early days New Mexico was the paradise of the hunter and trapper. The earliest explorers of this Territory, and what is now the State of Colorado, in the first quarter of the present century, came here in the pursuit of their chosen calling of fishing, trapping, and hunting. The old trapper was a peculiar individual and many are the tales which are yet told by the oldest inhabitants of the adventures and experiences of Kit Carson, Bent, Williams, and their associates in the far West. The old Santa Fe trail for years to come will be an ever pleasant theme for song and story of those hardy explorers who were the precursors of the civilization which we now enjoy. The coming of the railroad and the great influx of settlers throughout the Rocky Mountain country deprived the old hunter and trapper of his means of sustenance and to-day he is but a memory.

In the early days, while yet the hostile Indians roamed the Great Plains, game of every kind was plenty. The buffalo, the deer, elk, bear, mountain lion, and all the smaller varieties of wild animals, were here on every hand. To-day the buffalo, like the old plainsman and hunter of the past, is only a tradition.

In the mountains, however, there are yet remaining deer, bear, mountain lion, and elk; turkey and grouse, beaver and big-horn sheep and mountain goats, as well as all the other smaller varieties of game which attract the sportsman and the hunter. All of this class of game is to be found in the mountains, from Colorado on the north to the great spurs and ranges extending to and covering the extreme southern portion of New Mexico and the northern part of the Republic of Mexico. In the highest mesas and near the peaks of our greatest mountains are found the sheep, goat, and elk. In every mountain range of consequence in the Territory may be found the black, cinnamon, and silver-tip bear, the latter a small variety of the grizzly, but entertaining enough upon occasion to satisfy the true sportsman's heart to a nicety. It may truthfully be said that deer are comparatively in plenty in this Territory. The day was when great herds of antelope roamed the plains and valleys lying to the east of the main range of mountains in New Mexico, but to-day they are scarce, comparatively few remaining. Those which may be found are located in eastern Valencia, Bernalillo, and Guadaloupe counties, while some have been seen as far north as Union County and as far south as Lincoln, Chaves, Eddy, Otero, Donna Ana, Grant, and Sierra counties.

On the plains and in the valleys can be found quail, pheasants, Mongolian or Chinese pheasants, prairie chickens, and during the seasons geese, brant, ducks, plover, curlews, and snipe.

In every stream of consequence in New Mexico is found the Rocky Mountain trout. A gamer fish never rose to a fly. The principal streams where this delicious fish may be caught are the Pecos, Chama, Brazos, Navajo, Rio Pueblo, Santa Clara, San Antonio, Jemez, Los Pinos, Bonito, Mora, Sapello, Manuelitas, Gallinas, and Ponil, mostly in the northern and middle portions of the Territory and also in all the mountain streams in western Socorro and Sierra counties in the south. In some of the streams of Lincoln and Chaves counties are found great quantities of black bass, of a kind, however, not so gamy as his brother of the lakes and rivers in the North.

It may be safely said that there is yet remaining in the United States proper no place where game is more abundant or true sport more obtainable than in New Mexico.

The Territory, wisely anticipating the results caused by the inroads which are constantly being made upon the game everywhere throughout the Union, have passed very stringent laws relative to the slaughter and selling of game. The legislature of 1897 passed a very comprehensive law, by the terms of which it is unlawful to kill or wound, insnare or trap any elk, deer, antelope, fawn, mountain sheep, ibex, Rocky Mountain goat, or beaver within the boundaries of New Mexico, except that antelope and deer with horns may be shot during the months of September, October, and November of each year in the northern counties, and during October, November, and December in the southern counties. It is likewise unlawful to kill, wound, or insnare any quail, grouse, prairie chicken, pheasant, partridge, or wild turkey, except that such birds may be shot with a gun only during the months of September to February. The open season for fishing begins with June and ends with October of each year. The penalties for violation of the acts of 1897 are very severe and comparatively easy of enforcement, the burden of proof being upon the person charged with violation of the provisions of the act. In no event can any game be exposed for sale which has been killed within the limits of the Territory, and the burden of proving that any game or fish has been killed outside of New Mexico, when exposed by butchers and dealers in the markets for sale, is upon the dealers and butchers; a very wise provision, as experience in prosecutions has demonstrated.

A system of game wardens is established by the act; the wardens are appointed by the governor and they are clothed with the authority of making arrests, the same as the sheriffs of the several counties. The wardens hold their offices at the pleasure of the governor, and the executive is not restricted as to the number which he may appoint. Under this law the game of New Mexico is being thoroughly protected, not only for the benefit of our own citizens, but for any and all true sportsmen who may see fit to come here for a month's enjoyment of the hunting and fishing which is to be had in our mountains, mesas, plains, and streams.

A cordial invitation is extended to all of true sportsmen's instinct to a participation in the enjoyment of the sport of kings, with an assurance that the hand of welcome is always extended to those who come for the enjoyment and not to the abuse of the privilege.

The sportsmen visiting New Mexico need have no fear regarding accommodations, as proper conveyances can be secured at any point on the railroad by giving short notice, while at any of the principal towns he will find livery stables well supplied with teams and mountain wagons especially kept for the convenience of hunting and fishing parties, and who can furnish reliable drivers who are familiar with every desirable locality in their section of the Territory and whose charges are very reasonable.

RESOURCES.

The resources of New Mexico are boundless, and the possibilities of development in the Territory of New Mexico in numerous directions are unequaled by those of any other State or Territory in the Union. On account of the varied elevation almost everything that flourishes in the temperate zone, and many fruits that belong to the Tropics, grow to perfection in New Mexico. As a stock country it is excelled by none, in addition to which large, rich deposits of gold and silver, coal, iron, copper, sulphur, marble, building stone, and many different kinds of precious stones are found; New Mexico being the principal source of supply of the world for turquoise, which is of the finest quality and color. What we need to develop the mines, as well as the agricultural, stock growing, and other capabilities of our Territory is capital, and large fortunes are in store for those who have the money and industry to develop the wonderful resources of New Mexico. New Mexico needs more people; people who can invest in her mines and other industries which, if developed, would make our Territory one of the richest on the globe, and when the world at large becomes convinced of this, New Mexico will enter upon an era of prosperity never before dreamed of.

The ranges for sheep and cattle were never in better shape, and stock of all kinds is in excellent condition. The herds and flocks have increased in size and value very materially since the opening of the year, and with plenty of grass assured the sales of sheep and cattle this fall will bring large sums of ready money into the Territory.

Every prediction made for prosperity early in the year is now in a fair way to be fulfilled, and New Mexico will exceed almost all former yearly records in the amount of revenue derived from produce, sheep, and cattle at the close of the year's work.

UNDEVELOPED RESOURCES.

The Territory of New Mexico is a most inviting field for capital and skilled labor, having undeveloped resources almost without limit. Millions of acres of the finest agricultual land are yet to be reclaimed by the development and proper storage of water. Communication by enlarged and cheaper railroad facilities between the various portions of the Territory is earnestly hoped for, that an interchange of home products between the mining and agricultural sections may be carried on.

A large extent of New Mexico's rich mineral lands yet remains to be explored and developed. Her grazing lands have not been fully used, owing to the failure to develop artesian water (of which the finest in the world is found here) and erect surface windmills, the opportunities and conditions for which are excellent.

The opportunities of industrial life offer varied and profitable inducements to capital and labor, and the agricultural, mineral, and grazing wealth should receive from outside investors the attention they deserve.

Factories might also be started with profit. In this Territory there are many plants and grasses of indigenous growth that could be used in the manufacture of paper, bagging, rope, etc. Some of the hard woods growing in this Territory, at the base of the mountains, when dry take a beautiful polish, which produces a veneering of excellent quality. Eastern manufacturers could be supplied with this article who now obtain their product from other countries. A full report is given elsewhere on the lumber and forestry of our Territory.

Respectfully submitted.

MIGUEL A. OTERO,
Governor of Territory of New Mexico.

SANTA FE, N. MEX., *September 20, 1899.*

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REPORT

OF THE

GOVERNOR OF NEW MEXICO

TO THE

from
SECRETARY OF THE INTERIOR.

1900.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1900.

REPORT

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REPORT

OF THE

GOVERNOR OF NEW MEXICO FOR THE YEAR ENDING JUNE 30, 1900.

SANTA FE, N. MEX., *September 12, 1900.*

SIR: In obedience to your request I have the honor to herewith transmit to you my report of the Territory of New Mexico for the year ending June 30, 1900, showing the progress and development of our Territory during that period.

I desire to call special attention to the following subjects contained in my report: Education, statehood, report of the land commissioner, railroads, irrigation, population, financial condition, and taxable property of the Territory and each county, cliff dwellings, agricultural and horticultural development, mining, cattle, sheep and wool, forest reserves, and public buildings.

I have the honor to be, sir, your most obedient servant,

MIGUEL A. OTERO,
Governor of the Territory of New Mexico.

The SECRETARY OF THE INTERIOR,
Washington, D. C.

NEW MEXICO.

GEOGRAPHICAL LOCATION AND GENERAL RESOURCES.

New Mexico covers five degrees of the north temperate zone, extending from the thirty-second to the thirty-seventh parallel. Thus it corresponds in length and latitude with the two Carolinas and the major part of Georgia on the Atlantic coast, or with Tennessee and the upper two-thirds of Alabama and Mississippi coming inland. Only Florida among the American States lies wholly south of New Mexico's lower boundary, while but seven and one-half degrees, or one and a half times the Territory's own length, would extend that boundary to the northern limit of the torrid zone. In Europe but the extreme southern parts of Spain and Greece lie within New Mexico's latitudes. All the great resorts of France and Italy, Spain and Greece, with their celebrated skies and boasted climates, lie decidedly farther north. By location New Mexico is distinctly and emphatically a southern country.

PHYSICAL CONFORMATION OF NEW MEXICO.

The topography of New Mexico is interesting, but complex. In shape a parallelogram, with an average breadth of 335 miles and length of 367, it lies, so to speak, broadside to the sun, sloping from north to south, with an elevation of 7,000 feet in the former, sinking down to 3,500 feet in the latter, while many mountain peaks reach a height varying from 8,000 to 13,000 feet. These peaks and their connecting ranges are so scattered as to form the Territory into five distinct watersheds with their respective valleys. The Rio Grande divides New Mexico from north to south into very nearly equal portions and is to this country what the Nile is to Egypt. On the northeast the Canadian outlets the waters of that section into a tributary of the Mississippi, while on the southeast the Pecos has eroded a valley second only in extent to that of the Rio Grande, of which it is the chief tributary. In the northwest the San Juan and in the southwest the Gila collect the waters ultimately reaching the Pacific Ocean.

Each of these main rivers has a vast number of affluent streams, so great in fact that New Mexico is more largely supplied with water courses than is any other mining State or Territory. Along each stream are valleys, beyond the valleys high table-lands called mesas, and beyond these the mountain ranges proper. In the mountains and in many of these mesas are deep gorges or canyons with almost perpendicular walls. These collect the water from the melting snows and convey it to the streams ramifying it in all directions. Such, then, is the topography of the Territory—mountain peaks and chains, high table-lands, and lower lying valleys falling away to the south, thus securing a southern exposure throughout its vast extent of 122,580 square miles, or an area of 100 square miles larger than the land surfaces of New England, New York, and Maryland combined, or 1,241 square miles larger than all England, Scotland, Ireland, and Wales.

ABSENCE OF MOISTURE.

The aridity of New Mexico arises partly from her location, partly from her altitude, and partly from her topography. Her location is in the midst of the formerly so-called "Great American Desert," her borders about equidistant, or 500 miles each, from the Gulf of Mexico and the Pacific Ocean at their nearest approach. The Gulf of California, at its northern extremity, lies some 150 miles closer, but its water surface is inconsiderable.

The low-lying plains east of the Rocky Mountains draw the moisture-laden winds from the Gulf of Mexico, causing them to pass eastward of this section, but at the same time drawing over the Territory the winds from the Pacific and from the Gulf of California. Before these can reach New Mexico, however, they must climb, height by height, the ascending plateaus of Arizona, culminating in the bald-faced peaks of the Continental Divide. All know that the warmer the air the more water it will hold; and, on the other hand, the more the air is chilled the more it parts with its moisture. Every succeeding altitude but wrings more water from the air, just as each stronger grip of the hand squeezes more water from the sponge. When these almost desiccated winds reach New Mexico only the mountain chains and peaks can draw further moisture from them, leaving the valleys and table-lands with but the scantiest of scant supplies. This is why the average rainfall in the valleys of this Territory will not exceed an inch per month, two-thirds of the entire supply falling during the summer. Compare this with an average yearly precipitation at New York of 43 inches, Boston 45, Savannah 48, and the smallness of the rain supply will begin to be appreciated.

But altitude increases aridity by decreasing atmospheric pressure, and thus accelerating evaporation. The elevation of New Mexico averaging about 1 mile above sea level and reaching in the higher valleys to nearly 2 miles, it can be seen at once that water here most readily gives off its vapor. Especially is this true when taken in connection with the dry condition of the air and the almost ceaseless movements of the winds. The moisture that falls is immediately taken up into the air again. A snow of 2 or 3 inches in depth will pass away in a few hours, leaving the ground dry, having apparently returned into the air instead of melting. A refreshing shower in a day or two will have disappeared, leaving no mud behind. This is why any kind of a cloud is rare, and a day during some part of which the sun does not shine is almost unknown. Then, too, it must be remembered that the general slope of the country is on an average of about 10 feet to the mile, causing water, even in the streams (unless impounded), to run quickly away. For these reasons the humidity of the air in New Mexico averages about 36 per cent, while in New England it is 73 per cent, Florida 75 per cent, San Francisco 76 per cent, and the Gulf States 79 per cent.

RESOURCES OF NEW MEXICO.

FRUIT.

In the metropolitan markets of the Western States New Mexico's horticultural products command from 5 to 15 per cent greater price than the California products, owing to their size, richness in color, and peculiarly delicate flavor. In grapes, for which the Rio Grande Valley is famous, the Flame Tokay, the Muscats, the Black Hamburgs, and similar choice varieties are grown to prefection. In every quarter of the Territory are profitable orchards of apples, pears, peaches, cherries, plums, nectarines, and all the small fruits indigenous to the temperate and semi-tropic zones.

SUGAR BEETS.

Experiments covering a period of three years demonstrate that New Mexico excels any other country or section in the world in the quantity and quality of sugar beets. In 1896 in the Pecos Valley some 1,400 acres of beets were harvested. The average yield per acre was a little over 16 tons, and the average percentage of saccharine matter was over 16, the highest record ever made. The gross returns to the farmer averaged $67 per acre, and the cost of raising the crop was a little less than $22 per acre. The almost perpetual sunshine during the growing season is the cause of the extra percentage of sugar in the beets, and the richness and adaptability of the soil accounts for the heavy yield.

CEREALS AND VEGETABLES

Of innumerable variety are profitably produced in New Mexico. The latter are notable for size and flavor, as well as their keeping qualities. Rio Grande Valley oats took the second prize at the World's Fair. Every field crop and all classes of vegetables can be and are grown with success and profit.

MINERALS.

It is no exaggeration to affirm that, in point of natural resources, none of the peerless Rocky Mountain States exceed New Mexico. Gold, silver, copper, iron, zinc, lead, mica, coal (anthracite and bituminous), marble, fire clay, alum, sulphur, soda, salt, asphalt, gypsum, etc., are found in paying quantities in almost every county in the Territory. In many localities are valuable deposits of onyx, while the turquoise supply of the world is largely furnished by the New Mexico mines.

TIMBER AND COAL.

These essentials to the home seeker are plentiful and cheap in New Mexico. Tracts of virgin forest, large or small, may be purchased now at astonishingly low figures, since the United States court has rendered such timely service in settling titles to the land grants.

MINERAL SPRINGS.

The attention of the tourist and health seeker is especially invited to the number and varied character of the mineral waters in New Mexico. These are easily accessible by rail, and offer every reasonable accommodation to the visitor. Among such resorts are the Las Vegas Hot Springs, the Jemez Hot Springs, the Ojo Caliente Hot Springs, Hudson Hot Springs, the Sulphur Hot Springs, the Macbeth, Taylor, and Coyote mineral waters.

DESIRABLE LANDS.

New Mexico contains nearly 79,000,000 acres. Of these there are about 24,000,000 acres contained in land grants, Indian and military reservations, railroad grants, and Government entries, which leaves available an area of about 55,000,000 acres of land, capable of supporting an immense population running up into the millions.

Thousands of acres of wild lands are to be had by complying with the United States land laws, much of which is contiguous to water and is desirable for colonization purposes when ditches and water-storage reservoirs are provided. The land-grant question is no longer a bugaboo in New Mexico, and through the action of the land court titles to vast tracts have been cleared up and settled. Some millions of acres have been confirmed by the courts to private ownership, while, on the other hand, an equal acreage has been rejected, so far as the grant claimants are concerned, and the land added to the public domain, subject to entry.

OFFICIAL REGISTER.

Territorial officers.—Governor of the Territory of New Mexico, Miguel A. Otero, Las Vegas, N. Mex.; private secretary to governor, Miss N. P. Crane, Santa Fe, N. Mex.; secretary of the Territory, George H. Wallace; clerk in secretary's office,

C. P. Wallace; solicitor-general, Edward L. Bartlett; auditor, Luis M. Ortiz; treasurer, J. H. Vaughn; superintendent of Territorial penitentiary, H. O. Bursum; superintendent of public instruction, Manuel C. de Baca; librarian, Judge Lafayette Emmett; adjutant-general, William H. Whiteman; mine inspector, Jo. E. Sheridan; coal-oil inspector, John S. Clark.

Judiciary.—Chief justice of the supreme court and judge of the fourth judicial district, William J. Mills; clerk, Secundino Romero; clerk to the supreme court, José D. Sena. Associate justices of the supreme court—first judicial district, John R. McFie; clerk, A. M. Bergere; judge second judicial district, J. W. Crumpacker; clerk, H. P. Owen; judge third judicial district, Frank W. Parker; clerk, J. P. Mitchell; judge of the fifth judicial district, Charles Leland; clerk, John E. Griffith.

Delegate in Congress.—Pedro Perea.

Surveyor-general.—Quinby Vance.

United States revenue collector.—A. L. Morrison.

United States district attorney.—W. B. Childers.

United States marshal.—C. M. Foraker.

Deputy United States marshal.—J. J. Sheridan.

Registers and receivers land offices.—M. R. Otero, register, and Edward F. Hobart, receiver, Santa Fe; Emile Solignac, register, and H. D. Bowman, receiver, Las Cruces; Howard Leland, register, and George R. Guyer, receiver, Roswell; Edward Fox, register, and A. W. Thompson, receiver, Folsom, N. Mex.

District attorneys.—R. C. Gortner, Santa Fe; W. H. H. Llewellyn, Donna Ana and Otero counties; T. A. Finical, Albuquerque; R. D. Barnes, Silver City; Charles A. Spiess, Las Vegas; A. J. Nesbit, Roswell; S. Alexander, Socorro; J. Leahy, Raton, N. Mex.

Public printer.—J. D. Hughes.

Indian agent.—N. S. Walpole.

Court of private land claims.—Chief justice, Joseph R. Reed; justices, W. W. Murray, Henry S. Sluss, Thomas C. Fuller, and Wilber Stone; attorney, Matthew C. Reynolds; clerk, J. H. Reeder.

Officers of Territorial institutions.—The governor and superintendent of public instruction are the ex officio members of the board of regents of the following institutions: The University of New Mexico, the New Mexico College of Agriculture and Mechanic Arts, the New Mexico School of Mines, the New Mexico Insane Asylum, and the New Mexico Military Institute.

The University of New Mexico.—Regents: J. H. Wroth, Albuquerque; E. S. Stover, Albuquerque; Juan C. Armijo and F. W. Clancy, Albuquerque; H. L. Waldo, Las Vegas, N. Mex.

New Mexico College of Agriculture and Mechanic Arts.—Regents: G.. A. Richardson, Roswell; A. A. Jones, Las Vegas; P. H. Curran, Las Cruces; R. E. Twitchell, Las Vegas, and L. Bradford Prince, Santa Fe, N. Mex.

The New Mexico Normal School, Silver City.—Regents: J. W. Fleming, Silver City; W. G. Ritch, Engle; J. A. Mahoney, Deming; Jo E. Sheridan, Silver City, and C. F. Grayson, Silver City, N. Mex.

Normal University of New Mexico, at Las Vegas.—Regents: A. B. Smith, Las Vegas; Charles Ilfeld, Las Vegas; M. W. Browne, Las Vegas; Frank Springer, Las Vegas, and Rev. George Selby, Las Vegas, N. Mex.

New Mexico School of Mines, Socorro.—Trustees: J. P. McGrorty, Deming; Joseph E. Smith, Socorro; Juan Jose Baca, Socorro; F. G. Bartlett, Magdalena, and C. T. Brown, Socorro, N. Mex.

New Mexico Military Institute, Roswell.—Regents: Joseph C. Lea, Roswell; Nathan Jaffa, Roswell; J. O. Cameron, Eddy; Charles Wilson, Roswell; Robert S. Hamilton, Roswell, N. Mex.

New Mexico Insane Asylum, Las Vegas.—Directors: O. L. Gregory, East Las Vegas; M. Brunswick, Las Vegas; J. W. Zollars, Las Vegas; Benigno Romero, Las Vegas, and N. T. Cordova, Las Vegas, N. Mex.

Territorial board of education.—Members: Governor, superintendent of public instruction, president of St. Michael's College, at Santa Fe, president of the University of New Mexico, president of the New Mexico College of Agriculture, Las Cruces, N. Mex.

Board of penitentiary commissioners.—F. H. Pierce, San Miguel County; Juan Navarro, Mora County; J. T. McLaughlin, Santa Fe County; J. Francisco Chaves, of Valencia County; Louis Baer, of Bernalillo County.

Capitol custodian committee.—Secretary of the Territory, ex officio, Santa Fe; Solomon Spiegleberg, Santa Fe, and Alfredo Hinojos, Santa Fe, N. Mex.

Territorial board of equalization.—First judicial district, Venceslao Jaramillo, Rio Arriba County; second judicial district, Alejandro Sandoval, Bernalillo County;

third judicial district, Numa Reymond, Donna Ana County; fourth judicial district, James S. Duncan, San Miguel County; fifth judicial district, John W. Poe, Chaves County.

Cattle sanitary board.—James F. Hinkle, Chaves County; William H. Jack, Grant County; E. C. Austen, Mora County; M. N. Chaffin, San Miguel County; Malaquias Martinez, Taos County, N. Mex.

Board of medical examiners.—John Tasher, Bernalillo County; Frank D. Bishop, Bernalillo County; J. H. Sloan, Santa Fe County; Joseph Cunningham, San Miguel County; W. R. Tipton, San Miguel County; T. P. Martin, Taos County, and George C. Bryan, of Otero County.

Board of dental examiners.—B. M. Williams, of San Miguel County; D. W. Manley, Santa Fe; L. H. Chamberlain, of Bernalillo; W. H. White, of Grant County, and A. A. Bearup, of Chaves County.

Members of board of pharmacy.—A. J. Fischer, Santa Fe County; W. C. Porterfield, Silver City; B. Ruppe, Albuquerque; E. G. Murphy, Las Vegas, and P. Moreno, Las Cruces.

Sheep sanitary board.—Solomon Luna, of Valencia County; W. S. Prager, of Chaves County, and Henry W. Kelly, of San Miguel County.

Members of bureau of immigration.—L. Bradford Prince, Santa Fe; Felipe Chavez, Belen; W. A. Hawkins, Alamogordo; Frank Springer, Las Vegas; A. C. Campbell, Eddy, N. Mex.

Members of the board of the Deaf and Dumb Asylum.—Benjamin M. Reed, Mrs. T. P. Gable, Mrs. F. P. Crichton, and F. Muller.

Register of the thirty-third legislative assembly.

COUNCIL.

President of the council: J. FRANCISCO CHAVES.

Politics.	Members.	Post-office.	District by counties.
D.	J. M. Valdez	Springer	Colfax, Mora, Union.
R.	J. S. Duncan	East Las Vegas	San Miguel, Guadalupe.
R.	Eugenio Romero	Las Vegas	Do.
R.	T. D. Burns	Parkview	Taos, Rio Arriba, and San Juan.
R.	Malaquias Martinez	Taos	Do.
R.	T. B. Catron	Santa Fe	Santa Fe.
R.	T. A. Finical	Albuquerque	Bernalillo.
R.	Thomas Hughes	do	Do.
R.	J. F. Chaves	Progreso	Valencia.
R.	H. O. Bursum	Socorro	Socorro and Sierra.
R.	J. A. Ancheta	Silver City	Doña Ana and Grant.
D.	G. A. Richardson	Roswell	Doña Ana, Grant, Chaves, Lincoln, and Eddy.

HOUSE OF REPRESENTATIVES.

Speaker of the house: MAXIMILIANO LUNA.

D.	T. B. Leib	Raton	Colfax.
R.	Bernardo A. Romero	Watrous	Mora.
R.	John R. Guyer	Clayton	Union.
R.	Rafael Gallegos	Las Vegas	San Miguel.
R.	Wm. H. Schultz	East Las Vegas	Do.
R.	Ramon de Herrera	Rociada	Do.
R.	Celso Baca	Eden	Guadalupe.
R.	Victor Ortega	Chimayo	Santa Fe.
R.	Wm. Kilpatrick	Madrid	Do.
R.	Pedro Sanchez	Taos	Taos.
R.	V. Jaramillo	El Rito	Rio Arriba.
R.	Frank Staplin	Taos	Taos, Rio Arriba, and San Juan.
R.	A. D. McIntosh	Cedar Hill	Do.
R.	Pablo Crespin	Albuquerque	Bernalillo.
R.	Marcelino Baca	Pena Blanca	Do.
R.	E. Guttierrez	Old Albuquerque	Do.
R.	Max. Luna	Los Lunas	Valencia.
R.	Roman A. Baca	San Mateo	Do.
R.	Pablo Trujillo	Polvadera	Socorro and Sierra.
R.	F. H. Winston	Fairview	Do.
R.	Marcial Valdez	Las Cruces	Doña Ana.
R.	R. P. Barnes	Silver City	Grant.
R.	W. H. H. Llewellyn	Lascruces	Doña Ana and Grant.
D.	J. E. Wharton	White Oaks	Lincoln, Chaves, and Eddy.

POPULATION.

The results of the census of 1900 in New Mexico have not yet been officially promulgated, but enough is known to make it certain that the figures will fall somewhat short of the estimates printed in my last annual report, and will consequently prove a disappointment to all friends of the Territory.

According to the census of 1890 the population of the Territory by counties was as follows:

Bernalillo	20,913
Colfax	7,974
Doña Ana	9,191
Grant	9,657
Lincoln	7,081
Mora	10,618
Rio Arriba	11,534
San Juan	1,890
San Miguel	24,204
Santa Fe	13,567
Sierra	3,630
Socorro	9,595
Taos	9,868
Valencia	13,876
Total	153,593

According to the estimates made last year, founded on registration lists, election returns, and information derived from apparently trustworthy personal sources, the population of the Territory by counties was given as follows:

Bernalillo	35,000
Chavez	5,000
Colfax	14,000
Doña Ana	12,000
Eddy	4,000
Grant	15,000
Guadalupe	7,500
Lincoln	9,000
Mora	17,000
Otero	3,500
Rio Arriba	19,000
Santa Fe	21,000
San Miguel	35,000
San Juan	5,000
Sierra	5,500
Socorro	19,000
Taos	13,000
Union	7,000
Valencia	14,000
Total	260,500

The Indian population is estimated as follows:

Pueblos	9,047
Jicarillas	832
Mescaleros	450
Navajos (Arizona and New Mexico)	15,000
Total	25,329

This makes a total population of the Territory, as estimated, of 285,829.

Semiofficial information makes it evident that the census of this year will show that all these estimates were too high and will credit the Territory with an aggregate population of less than 200,000. The only counties credited with gains over the census of 1890 are Bernalillo, Colfax, Doña Ana, Grant, Rio Arriba, San Juan, Socorro, and Taos. The population of the other old counties is shown to have remained nearly stationary for ten years, of course excepting the material changes occasioned by the creation of the new counties of Chaves, Eddy, Guadalupe, Otero, and Union out of territory embraced in a number of the old ones in 1890. There are substantial reasons for believing that an examination of the census enumeration of 1900 will not properly show the population of New Mexico except in the southern tier of counties, notably Grant, Doña Ana, Chaves, and Eddy, wherein the enumeration is believed to be very nearly correct.

The reasons for this belief deserve consideration. The total number of voters registered in New Mexico in 1898 was about 48,000, and the total number of votes cast for Delegate the same year was 35,843. No doubt is entertained that all the voters registered were actual residents of the Territory at the time, but for various reasons failed to vote. So it is fair to say that the registration of 1898 indicated a population of 240,000, exclusive of Indians, and it is known that the steady development of the mining, timber, stock-growing, agricultural, and horticultural industries of such counties as Bernalillo, Chaves, Colfax, Doña Ana, Eddy, Grant, Lincoln, Otero, Rio Arriba, San Juan, Socorro, and Taos has been more than sufficient to hold the population of the Territory at the number indicated by the registration of 1898. San Miguel County suffered a loss of population since 1890 by the segregation from its boundaries of Guadalupe County, but there are many evidences that this loss has much more than been made up by the influx of new residents during the past ten years. According to the census of this year the population of Santa Fe County has remained virtually stationary during the past decade. No one familiar with the constant growth of the agricultural and horticultural industries of the northern sections of the county and the corresponding development of the mining industry in the southern part, together with the signs of general prosperity witnessed on every hand, believes that the population of this county has not increased since 1890. Indeed, well-informed people do not believe that the other old counties of the Territory, particularly those peopled chiefly by natives, which are reported to have remained practically stationary in population during the past ten years, have been justly dealt with in the enumeration. It is of course true that the counties embracing the Cochiti, Santa Rita, Hanover, San Pedro, Red River, Elizabethtown, Amizett, Golden, Water Canyon, Magdalena, Organ, San Andreas, Hillsboro, White Oaks, and all the other flourishing mining districts of the Territory, and those that have recently witnessed the reclamation and cultivation of large areas of fertile land within their borders by means of new and extensive irrigation systems, have gained more in population than the other counties, but all the facts at command discredit an enumeration showing that any county in the Territory has either remained stationary or fallen off in population. It is well known that the native people of the counties where this kind of a showing is made by the census returns are not migratory, but live for generations in the same locality, and that the natural increase of population in these counties has been constant during the past ten years, while the death rate from smallpox and kindred diseases, which years ago wrought such sad havoc among the native people and the Indian tribes, has been reduced to insignificant proportions by modern methods of treatment.

So the conclusion is unavoidable that the census enumeration, which credits New Mexico with less than 200,000 population in 1900, does the Territory grave injustice. Unquestionably an accurate and complete enumeration would show that the Territory has a population of fully 225,000, exclusive of Indians, and that, counting the Navajoes, a majority of whom live within its boundaries, New Mexico has an Indian population of about 30,000, swelling the aggregate population to at least 255,000 people.

The burden of blame for this lamentable condition of affairs is not justly attributable to incapacity or willful negligence on the part of the supervisor and enumerators in this Territory, but much of it is due to the fact that both the census law and the general system promulgated from Washington were not sufficiently comprehensive and elastic to meet the peculiar requirements of sparsely settled mountain sections like many of those in New Mexico. A system of enumeration that will answer every desired purpose in the closely settled States of the East, where trolley cars and other cheap and quick means of transportation are at instant command, is not adjustable to the needs of a great Territory like New Mexico, where many of the counties are larger than some of the Eastern States, where settlements are frequently from 20 to 60 miles apart, where horses are in very many instances the only means of conveyance, and where expenses of all kinds are high. An idea of the task of some of the enumerators in New Mexico can be formed from the fact that one of them traveled nearly 1,000 miles to secure 600 names.

The truth is that many of the enumeration districts were too large, the time allowed for the work was too short, and the compensation allowed enumerators was not sufficient. Those in the three cities of Santa Fe, Albuquerque, and Socorro were paid at the rate of about 2½ cents per capita for the names enumerated, while those employed in the other districts of the Territory were paid at the rate of $5 per day for ten hours of actual work, and no allowances for expenses were made to either class. So, after paying for horse hire and horse feed, and defraying necessary personal expenses in making their long and toilsome official trips, the enumerators who did the most faithful and thorough work actually came out behind, while others, discovering that they were doing a good deal of hard work for nothing or at a loss, doubtless avoided some long and costly trips. The people of New Mexico have repeatedly and grandly demonstrated their patriotism and devotion to the United States in perilous times of war, promptly furnishing more than their quota of volunteer soldiers in both the civil war and the Spanish-American war, but they could not reasonably be expected to furnish volunteers to take the Federal census at a personal sacrifice of time and money. If a reasonable allowance had been made to the enumerators for actual expenses, the districts had been made smaller, and the time for doing the work had been extended long enough to meet the conditions already indicated, it is my candid judgment that the population of nearly every county in the Territory would have been shown to be much larger than the figures forwarded to Washington.

STATEHOOD.

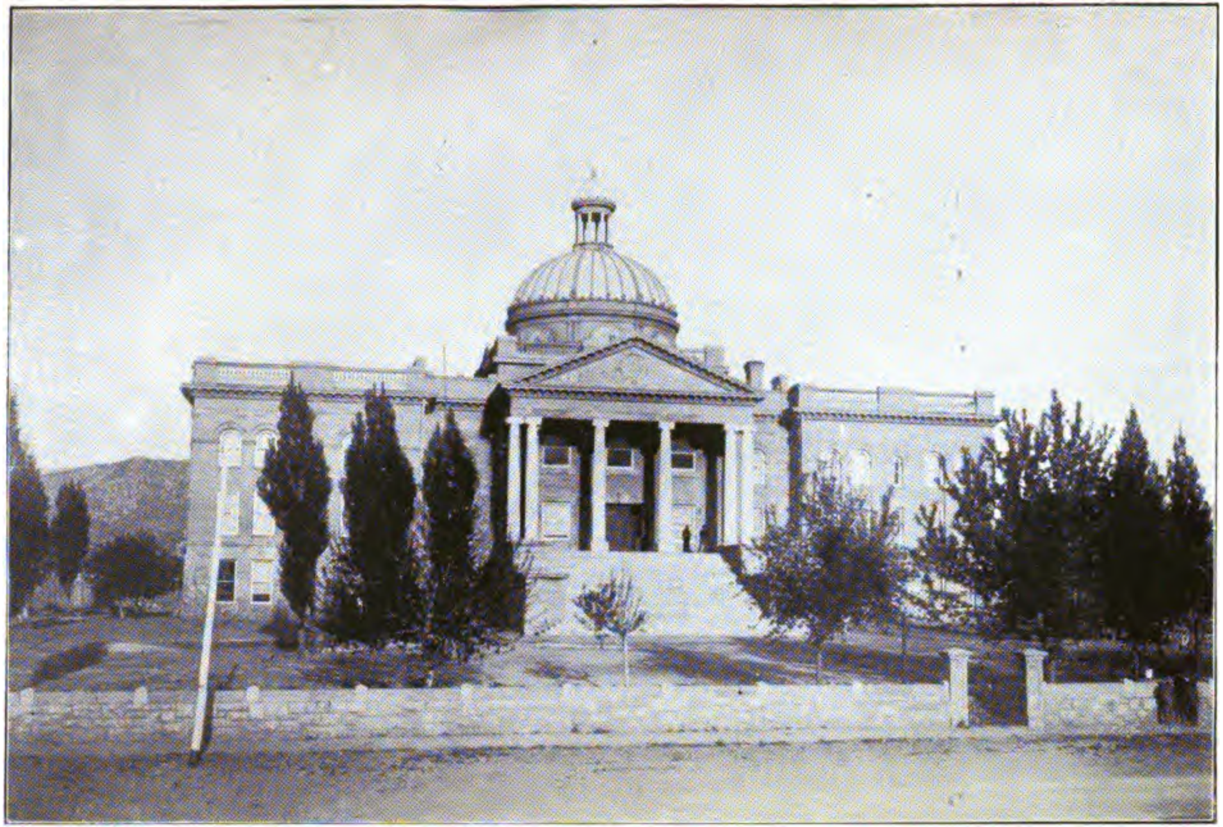
I would most earnestly renew my recommendation, made in my last report, with reference to the early admission of New Mexico as a State of the Union. The reasons given at that time for such admission are stronger now by reason of increased population, wealth, and intelligence. In that report I stated:

> It is unnecessary here to repeat the arguments which demonstrate conclusively that New Mexico is entitled to statehood. Her sheep and cattle industries, as already reviewed herein, her mineral wealth, her agricultural advantages, all stand as a guaranty that the new State of New Mexico will be amply able to meet the obligations which necessarily will be incurred in the change of government and her ability to sustain her own government permanently.
>
> The admission of New Mexico to the sisterhood of States would be beneficial alike to her people and the Federal Government. Self-government, which carries with it to every citizen the right to participate in the selection of the various officers intrusted with the management of the government, is a privilege few American citizens would willingly be deprived of, and one that all eagerly seek. Self-government would not only relieve the Federal Government of the enormous expense it is subjected to in the management of the present Territorial form of government, but would also relieve it of the responsibility of selecting the officers to manage the Territory's affairs.

Since that time our assessed value for taxation has increased and it is now more than $40,000,000, and constantly growing, while the population, caused by immigration, is also increasing rapidly. New Mexico sold more than 18,000,000 pounds of wool this year, which is 3,000,000 pounds more than ever before in her history, while her mines of copper and gold are being developed in a manner never known before. More capital has been invested in their development during the past year than previously, especially in Grant, Otero, Bernalillo, and Santa Fe counties. In this connection I quote the following from a Washington correspondent of the St. Louis Globe-Democrat:

> WASHINGTON, D. C., *September 11.*
>
> The War Department to-day made public the figures on the enlistments for the first ten regiments. Massachusetts furnished 833, which is the best showing, in proportion to population. The figures for Western and Southwestern States are as follows: Missouri, 639; Arkansas, 122; Colorado, 316; Illinois, 1,161; Indiana, 654; Iowa, 192; Kansas, 415; Texas, 548; Mississippi, 42; Nebraska, 171; Tennessee, 567; Arizona, 90; New Mexico, 121; Oklahoma, 124; Indian Territory, 109.
>
> The Northwestern States made a very bad showing. Wisconsin furnished but 98 men; Idaho, 15; Minnesota, 122; Montana, 30; North Dakota, 13; Oregon 80; South Dakota, 9. This is a total of 367 men for all the Northwestern States. Georgia alone furnished 446, and Texas 435. The smallest number of recruits secured from any one State was two, from Nevada.
>
> Missouri's showing was one of the best, considering the fact that no regiment of the first ten were rendezvoused there. The reports of recruiting for the ten regiments now being organized show that the Thirth-eighth, now being recruited at Jefferson Barracks, by Colonel Anderson, leads all the rest, with 485 men to its credit up to date. The nearest approach to this showing is made by the Forty-second Regiment, which is being organized at Fort Niagara, N. Y. The number of men secured for this regiment to date is 339. The total number of recruits secured for the ten new regiments to date is 4,790.

There is a slight error in the above article, where it is stated that "Massachusetts furnished 833, which is the best showing in proportion to population." This is not true for both New Mexico and Arizona did much better in proportion to the number of their people. New Mexico sent 121 and Arizona 90, or a total of 211. The census of 1890 gives Arizona's population as 59,696; New Mexico's 153,593, and Massachusetts' 2,238,943. New Mexico and Arizona, then, with a combined population of 213,289, or less than one-tenth of that of Massachusetts, furnished over one-fourth of the number sent by the State of the Pilgrim Fathers, of Adams, Webster, and Hoar.



Territorial Capitol Building, Santa Fe, N. Mex.

This is a comparison with the best in the extreme East. Now let us see what showing the two Territories make when compared with some of the sovereign States of the imperial West. Idaho, 15; Montana, 30; North Dakota, 13; South Dakota, 9; Nevada, 2; Wisconsin, 98. Total, 167, or just 44 less than that furnished by New Mexico and Arizona, whose people are "incapable of self-government." The States above mentioned have twelve United States Senators and sixteen members of the national House of Representatives. New Mexico and Arizona have two Delegates in Congress without the right to vote on any question because they represent constituents "incapable of self-government."

Why not statehood, then?

Under the treaty of peace concluded between the United States and Mexico February 2, 1848, known as the "Treaty of Guadalupe-Hidalgo," it was provided that "the territory acquired by the Mexican war and under that treaty should be incorporated in the union of the United States and be admitted at the proper time (to be judged by the Congress of the United States) to the enjoyment of all the rights of citizens of the United States according to the principles of the Constitution." Since that time California and Colorado have been admitted, and New Mexico and Arizona (which was formerly a county of this Territory) have been refused this privilege, and, I might say, rightly! For fifty years the Territory, through its legislature and by the recommendations of its governors, has been asking for this recognition guaranteed by solemn treaty stipulations. As long ago as 1850 New Mexico adopted a State constitution and elected a governor and two United States Senators, and its admission was only prevented by the adoption of the celebrated "compromise measures of that year." Twenty years afterward it held a constitutional convention, which formulated a most admirable constitution. In 1876 a bill to admit it to statehood, together with Colorado, passed both Houses of Congress and only failed to become a law by nonconcurrence in an amendment to that bill. Again, in 1889, there was a constitutional convention lasting nearly a month, composed of men of the highest character and ability, and their labors resulted in the presentation of a constitution which I have no hesitation in saying was the best formulated in the United States. Copies were laid before both Houses of Congress and several bills were introduced for its admission, and since that time each session of Congress has seen bills introduced by members of both political parties for the admission of New Mexico as a State, which have so far failed and for which failure no good reason has been given. Another bill for this purpose will be introduced at the coming session of Congress, and I urge its earnest consideration in behalf of the quarter of a million of people of this Territory.

The organization of civil government in the Territory of New Mexico was unique. The organic act establishing the Territory was approved September 30, 1850; the ratification of the treaty of peace between the United States and Mexico was held May 3, 1848, and proclamation thereof made July 4, 1848, just fifty years earlier than the capture of Santiago. But two years prior to that time the United States Government had established through its military authority a complete code of civil laws for the future Territory of New Mexico, which, at that time, consisted of the present Territory, all of Arizona, and the southern half of Colorado. On the 22d day of September, 1846, Brig. Gen. S. W. Kearney, in command of the army of invasion, issued and proclaimed to the people a "bill of rights," which is still retained on the statutes unchanged. On the same day he proclaimed "the Kearney

Code," which was reenacted by the legislature in 1865 and nearly all the provisions of which are still in force; and on the same day by virtue of his authority as brigadier-general, he appointed the following list of civil officers: Charles Bent, to be governor; Donaciano Vigil, to be secretary; Richard Dallam, to be marshal; Frank P. Blair, to be United States district attorney; Charles Blumner, to be treasurer; Eugene Leitzendorfer, to be auditor of public accounts; and Joab Houghton, Antonio Jose Otero, and Charles Beaubian, to be judges of the superior court. In his letter transmitting to the Adjutant-General a copy of these laws and list of appointments, General Kearney made the following statement:

> I take great pleasure in stating that I am entirely indebted for these laws to Col. A. W. Doniphan, of the First Regiment of Missouri Mounted Volunteers, who received much assistance from Private Willard P. Hall of his regiment. These laws are taken, part from the laws of Mexico, retained as in the original, a part with such modifications as our laws and Constitution made necessary; a part are from the laws of Missouri Territory, and a part from the laws of Texas, and also of Texas and Coahuila, a part from the statutes of Missouri, and the remainder from the Livingston Code.

The first governor, Bent, was assassinated the year after his appointment, at the pueblo of Taos, during what is known as the "Taos rebellion," which was suppressed with considerable loss of life by United States troops, out of which rebellion arose a number of prosecutions for treason, conducted by Frank P. Blair, United States attorney.

The civil law and the Kearney Code remained the rules of civil action down to 1876, when, by statute, the "common law as recognized in the United States of America," was adopted. This was the law of the land until the legislature of 1897 adopted a code of civil procedure.

The first legislative assembly of the Territory of New Mexico assembled in Santa Fe in December, 1847. The laws passed at that session were printed in a pamphlet, to which was added "Order No. 10," from the Headquarters of the Ninth Military Department, imposing a duty of 6 per centum on merchandise imported into the Territory. The authorization of these laws is printed in the same pamphlet, as follows:

SPECIAL ORDER, }
No. 5. }
HEADQUARTERS NINTH MILITARY DEPARTMENT,
Santa Fe, N. Mex., February 5, 1848.

The foregoing legislative enactments of the Territory of New Mexico, having been duly reviewed by the commanding-general of the Territory, they are hereby approved, and they will be duly observed.

By order of brigadier-general:

STERLING PRICE.

W. E. PRINCE,
Aid-de-Camp and Acting Assistant Adjutant-General.

The first section of the General Orders No. 10, referred to on the title-page of the laws, is as follows:

> On and after the 1st day of February, 1848, the following regulations will govern the civil and military officers in the discharge of their respective duties: First, the officers named in the statutes as secretary of Territory, United States district attorney, and United States marshal are hereby abolished.

It is believed the above résumé of the methods of introducing American laws into conquered Spanish territory may be of interest at this time when similar conditions exist which may require similar action on the part of the Government.

Referring again to the constitutional convention held in 1889, I beg to submit its work herewith as an evidence of the character, ability, fairness, and broadness of the people who framed it, and who were representative New Mexicans. I submit it confidently, to compare favorably as a state document with any of the constitutions adopted by the older States, and earnestly invite your attention to the same as showing the qualities of mind and character of thought representative of the people of New Mexico upon this organic measure. This constitution was submitted to Congress at the session of 1890, and bills for the admission of New Mexico have been introduced by members of both political parties at each session of Congress since. They have failed to become laws, and no good reasons have been given for such failure.

Under the pledge contained in the platforms of the Republican and Democratic parties for 1900 another bill for admission of this Territory will be introduced at the coming session of Congress, and I once more urge most earnestly its favorable consideration on behalf of the patriotic citizens of New Mexico, who for half a century have been urging upon Congress this recognition of their rights.

The records of the civil war and the late war with Spain show that, in proportion to her population, New Mexico has furnished more troops to uphold the national flag than any other State or Territory in the Union. There have only been three of her laws disapproved by Congress during the half century in which she has been holding legislatures.

Her financial credit and standing is the best, her 4 per cent bonds commanding a premium, and $45,000 of outstanding bonds have been purchased and retired by the treasurer during the past year. Her public-school system is modeled on that of Illinois and Kansas, and she levies a direct Territorial tax for the support of these schools, varying from 1½ to 3 mills annually, under which the illiteracy has decreased during the ten years of the operation of this system more than 50 per cent.

As for the population, physical, financial, educational, and social conditions of the Territory, particular attention is called to the separate reports contained herein.

THE CONSTITUTION OF THE STATE OF NEW MEXICO, ADOPTED BY THE CONSTITUTIONAL CONVENTION HELD AT SANTA FE, N. MEX., SEPTEMBER 3-21, 1889.

PREAMBLE.

We, the people of New Mexico, grateful to Divine Providence for the liberties we enjoy, in order to perform a more perfect and substantial government and promote the general welfare, do ordain and establish this constitution.

ARTICLE I.—*Name and boundaries of the State.*

SEC. 1. The name of this State shall be "New Mexico."

SEC. 2. The boundaries of this State are and shall remain as follows: Commencing at the point where the thirty-seventh parallel of north latitude intersects the one hundred and third meridian of longitude west from Greenwich; thence running south along said one hundred and third meridian of longitude west from Greenwich to the point where it intersects the thirty-second parallel of north latitude; thence running west along said thirty-second parallel of north latitude to the Rio Bravo del Norte; thence running southerly with the channel of said river to the point where the parallel of thirty-one degrees forty-seven minutes north latitude crosses the same; thence running due west one hundred miles to a point; thence running south to the parallel of thirty-one degrees twenty minutes north latitude; thence running west along the said parallel of thirty-one degrees twenty minutes north latitude to the point where it intersects the thirty-second meridian of longitude west from Washington; thence running north along said thirty-second meridian of longitude west from Washington to the point where it intersects the thirty-seventh parallel of north latitude, at the southwest corner of the State of Colorado; and thence running east along said thirty-seventh parallel of north latitude to the point of beginning.

ARTICLE II.—*Bill of rights.*

SEC. 1. No hereditary distinction shall be granted; and no person holding any office under this State shall accept any office, title, emolument, or present from any king, prince, or foreign state.

SEC. 2. No person shall hold any office in this State who is not a citizen of the United States and of the State.

SEC. 3. No person shall be deprived of life, liberty, or property except by due process of law, nor shall private property be taken for public use without just compensation first made or secured.

SEC. 4. In all criminal prosecutions the accused shall have the right to appear and defend in person and by counsel; to be informed of all accusations; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses on his behalf, and a speedy public trial by an impartial jury of the county or district in which the offense is alleged to have been committed; and he shall not be compelled to give evidence against himself, nor shall any person be twice put in jeopardy for the same offense.

SEC. 5. No bill of attainder, ex post facto law, or law impairing the obligation of contracts shall be enacted.

SEC. 6. The privilege of the writ of habeas corpus shall not be suspended unless in case of rebellion or invasion the public safety may require.

SEC. 7. All persons shall be bailed by sufficient sureties, except for capital offenses, when the proof is evident or the presumption great. Excessive bail shall not be required, nor excessive fines imposed, nor cruel or unusual punishments inflicted.

SEC. 8. There shall be no imprisonment for debt except in case of fraud.

SEC. 9. Suit may be brought against the State in such manner and in such courts and in such cases as may be prescribed by law.

SEC. 10. All lotteries or sale of lottery tickets are prohibited.

SEC. 11. Provision shall be made by law for enrolling, reorganizing, and equipping the militia, provided no person shall be required to serve in the militia whose religious creed or discipline prohibits the bearing of arms, but such person shall render an equivalent for such exemption.

SEC. 12. The right of the people to keep and bear arms shall not be infringed.

SEC. 13. All rights vested and liabilities incurred shall remain the same as if this constitution had not been adopted, and the enumeration of certain rights shall not be construed to deny others retained by the people.

SEC. 14. The free exercise and enjoyment of religious profession and worship, without discrimination or preference, is hereby guaranteed, and no person shall be rendered incompetent to be a witness or a juror on account of his opinions on matters of religious belief; but the liberty of conscience hereby secured shall not excuse acts of licentiousness or justify polygamous practices or other acts inconsistent with morality or the peace or safety of the State, nor permit any person, organization, or association, directly or indirectly, to aid or abet, counsel or advise any person to commit bigamy or polygamy or any other crime. Bigamy and polygamy are forever prohibited.

SEC. 15. The citizens have a right to assemble in a peaceable manner for the common good or any other lawful purposes.

SEC. 16. Liberty of speech or of the press shall not be restrained; but for the abuse of such liberty every person shall be responsible.

SEC. 17. The military shall be in strict subordination to the civil power.

SEC. 18. The people shall be secure in their persons, houses, papers, and effects from unreasonable searches and seizures, and no warrant shall issue without probable cause, supported by affidavit particularly describing the place to be searched and the person or things to be seized.

SEC. 19. There shall be neither slavery nor involuntary servitude in this State otherwise than as a punishment for crime whereof the party shall have been duly convicted.

SEC. 20. No law of primogeniture or entailment shall ever be enacted, but the same is forever prohibited.

SEC. 21. Treason against the State shall consist only in levying war against it, adhering to its enemies, or giving them aid and comfort. No person shall be convicted of treason unless on the evidence of two witnesses to the same overt act, or on confession in open court.

SEC. 22. The right of trial by jury shall remain inviolate. The legislature shall pass such laws as may be necessary to regulate the same.

SEC. 23. No grand jury shall be summoned in any county unless the judge of the district court for such county shall direct the same by special order.

SEC. 24. No officer or person authorized by this constitution to appoint any person to office shall ever appoint to office any person who may be related to him by blood or marriage within the fourth degree of consanguinity according to the civil law rule of computation.

SEC. 25. The legislature shall pass liberal exemption laws; and there shall be exempt from levy and forced sale, under any process or order from any court of law or equity in this State, the lot or parcel of ground and the buildings thereon, owned by the debtor and occupied by him as a residence, he being a householder and having a family, to the value of not less than twenty-five hundred dollars.

SEC. 26. The natural right of the people to one day of rest in every seven is hereby acknowledged.

ARTICLE III.—*Distribution of powers.*

SEC. 1. The powers of the government shall be distributed in three departments, the legislative, the executive, and the judicial.

SEC. 2. The legislative, the executive, and the judicial departments of the government shall be separate and distinct; and neither shall exercise the powers properly belonging to either of the others. No person shall be invested with or exercise the powers of more than one department at the same time.

ARTICLE IV.—*The legislative department.*

SEC. 1. The legislative power shall be invested in a legislature composed of a senate and house of representatives, both to be elected by the people, and the session of such legislature shall be held at the seat of government of the State.

SEC. 2. Until otherwise provided by law the senate shall consist of twenty-four members and the house of representatives of forty-six members.

SEC. 3. The number of members of the legislature shall be fixed by law, but the members of the senate shall never be less than twenty-three nor exceed thirty-three, and the members of the house of representatives shall never be less than forty-six nor exceed ninety-nine, and the number of the members of the senate shall, after the first legislature, never be less than one-third nor more than one-half the number of members of the house of representatives, but each county shall have at least one representative.

SEC. 4. Senators shall be elected for four years, except as hereinafter provided, and representatives for two years.

SEC. 5. At the first session of the legislature after the adoption of the constitution the senators shall, immediately on organizing, be divided into two classes, designated by odd and even numbers consecutively from one upward. When any senatorial district has more than one senator, the names of such senators shall, as near as practicable, be equally divided between the odd and even numbers. Those of the one class shall hold their offices for two years, and those of the other class for four years, and the determination of the two classes shall be made by lot, after the names have been so numbered, so that one-half the senators, as near as practicable, may be elected biennially thereafter.

SEC. 6. No person shall be eligible to the legislature who is not a qualified elector in this State, and who has not been a citizen of New Mexico for at least two years prior to his election. Representatives must not be less than twenty-one years of age, and senators not less than twenty-five years of age at the time of election, and must be residents of the districts or counties from which they are elected.

SEC. 7. Members of the legislature shall receive for their services such compensation as may be fixed by law, but no law increasing their compensation shall apply to the members of the legislature enacting such law. Until otherwise provided by law they shall receive four dollars per day during the session and ten cents for each mile of necessary travel from their homes to the seat of government and returning, once for each session.

SEC. 8. The legislature shall meet regularly once in two years, on the first Tuesday after the first Monday in January next after the election in November; but the first legislature elected under this constitution shall meet on the first Monday after the expiration of ninety-days from the date of the passage and approval of an act of Congress admitting this State into the Union, unless the time for such meeting be fixed by said act. No regular session shall last more than sixty days, nor any special session more than twenty days. At special sessions no business shall be transacted except such as relates to the objects for which the legislature was convened, to be stated in the proclamation of the governor.

SEC. 9. A majority of either house shall constitute a quorum to do business, but a less number may effect a temporary organization, adjourn from day to day, and compel the attendance of absent members.

SEC. 10. Each house shall be the judge of the election and qualifications of its own members, and shall determine the rules of its proceedings. The senate shall, at the beginning and close of each regular session, and at such other times as may be necessary, elect one of its members president pro tempore to preside in the absence or in case of the impeachment of the lieutenant-governor, or when he shall hold the office of the governor. The house of representatives shall elect one of its members speaker. Each house shall choose its other officers, but the legislature shall not elect or appoint any officer except United States Senators.

SEC. 11. Each house shall have power to punish its members for disorderly behavior, or for absence without permission of the house, and by a vote of two-thirds of all its members to expel any member, but not a second time for the same offense; to enforce obedience to its process; and to punish by imprisonment, not extending beyond the session, any person not a member, for contempt or for disorderly behavior in its presence, obstructing any of its proceedings or any of its members or officers in the discharge of their duties; or for any assault, threatening, or abuse of a member for words spoken in debate; but such punishment for contempt or disorderly behavior shall not bar a criminal prosecution for the same offense.

SEC. 12. Members of the legislature shall in all cases, except treason, felony, violation of their oath of office, and breach or surety of the peace, be privileged from arrest during their attendance at the sessions of their respective houses, and in going to and returning from the same. And no member, for words spoken in any speech or debate, or for any vote he may give as such member, shall be questioned in any other place.

SEC. 13. No member of the legislature shall, during the term for which he was elected, be appointed or elected to any civil office which has been created, or the emoluments thereof have been increased, during such term; nor receive any civil appointment to any office within the State; nor shall any member of the legislature, during the term for which he was elected, or within one year thereafter, be interested directly or indirectly in any contract with the State, or any county thereof, authorized by any law passed during such term.

SEC. 14. Each house shall keep a journal of its proceedings and shall publish the same. Neither house shall, without the consent of the other, adjourn for more than two days, nor to any other place than that where the two houses are sitting; and on the day of final adjournment they shall adjourn at twelve o'clock noon.

SEC. 15. The enacting clause of all bills shall be, "Be it enacted by the Legislature of the State of New Mexico." Any bill may originate in either house of the legislature. No bill shall become a law unless it has been printed and read three different times, not more than two of which shall be on the same day, and the third of which readings shall be in full.

SEC. 16. Each law, except general appropriation bills, shall embrace but one subject, which shall be expressed in the title; but if any subject which is not so expressed in the title shall be embraced in any law, such law shall be void only as to so much thereof as shall not be so expressed.

SEC. 17. General appropriation bills shall embrace nothing but the appropriations for the expenses of the executive, legislative, and judicial departments of the State, interest on the public debt, for public schools, and for continuing expenses required by existing laws; but if any such bill contain any other matter, the whole law shall not be thereby rendered void, but only so much thereof as is hereby forbidden shall be considered of no effect. All other appropriations shall be made by separate bills, each embracing but one subject.

SEC. 18. No bill shall become a law except by a vote of a majority of all the members elected to each house, nor unless on its final passage the vote be taken by ayes and noes, and the names of those voting entered on the journal.

SEC. 19. The presiding officer of each house shall, in the presence of the house over which he presides, sign all bills and joint resolutions passed by the legislature, and publicly announce the title of the same as signed; and the fact of such signing shall be entered in the journal.

SEC. 20. No law shall be enacted except by a bill adopted by both houses, and no bill shall be so altered or amended on its passage through either house as to change its original purpose.

SEC. 21. No law or section of the law shall be amended by reference only to its title or number, but such law or section shall be set forth at full length as amended.

SEC. 22. The legislature shall not pass special or local laws on any of the following subjects, that is to say:

Assessment and collection of taxes.

Exemptions from taxation.

Laying out, opening, working, altering or vacating roads, highways, streets or public squares;

Changing the names of persons or places;

Incorporating cities, towns and villages;

Locating or changing county seats;

Appointment or election, jurisdiction, duties, or compensation of city, town, village, or precinct officers;

Regulating the practice of courts of justice;

Changing the venue in civil or criminal cases;

Changing the law of descent;

Granting divorces;

Summoning and impaneling jurors;

Common schools;

Affecting estates of minors or other persons under legal disability;

Claims or accounts against the State or any municipality existing therein;

Refunding money paid into the treasury;

Releasing persons from any debt or obligation to the State, or any municipal or quasi-municipal corporation therein;

Granting or amending charters to corporations, or licensing toll roads or bridges; provided, however, that nothing in this paragraph contained shall prohibit the amendment of charters of municipal corporations heretofore created by any special law of the territorial legislature;

County, city, town, village, precinct, or district indebtedness;

Legitimizing children;

Creating, increasing, or decreasing fees, percentages, or allowances of public officers;

But upon all subjects above mentioned, and in all other cases where a general law can be applicable, all laws shall be general, and no special law shall be enacted in any case which is provided for by an existing general law, or where the relief sought can be had in any court in the State.

SEC. 23. The legislature shall not grant to any corporation or corporations, nor to any person or persons, any rights, privileges, immunities, or exemptions which shall not upon the same terms belong equally to all persons.

SEC. 24. In all elections and confirmations to be made by the legislature, or either house thereof, the members shall vote viva voce, and their votes shall be entered in the journal. The sessions of each house, and of the committee of the whole, shall be open.

SEC. 25. No bill for the appropriation of money, except for the ordinary expenses of the government, shall be introduced after the fiftieth day of the session, except by unanimous consent of the house in which it is introduced.

SEC. 26. No public act shall take effect until the expiration of sixty days from the end of the session at which the same may be passed, unless, in case of public emergency, which shall be expressed in the act, the legislature shall in the same act otherwise direct.

SEC. 27. The power of impeachment shall be vested in the house of representatives, but a majority of all the members of the house shall concur to direct an impeachment. All impeachments shall be tried by the senate, and when organized for the purpose of such trial the chief justice of the supreme court of the State shall preside, unless he is impeached or otherwise disqualified, when the senate shall elect a presiding officer, and no person shall be convicted except upon the vote of two-thirds of the senators elected. Any person convicted shall be removed from office, and may, in addition, be forever disqualified from holding any office or voting in this State; but such trial shall not be a bar to a criminal prosecution or civil action.

SEC. 28. The legislature shall pass all laws necessary to carry into effect the provisions of this constitution.

ARTICLE V.—*Executive department.*

SEC. 1. The executive department shall consist of a governor, lieutenant-governor, secretary of state, auditor of public accounts, state treasurer, attorney-general, and superintendent of public instruction, each of whom shall be elected by the people, and hold his office for the term of two years, beginning on the first Tuesday after the first Monday of January next after his election; provided, that the terms of office of those chosen at the first election held under this constitution shall begin on the day appointed for the first meeting of the legislature as hereinafter provided. There shall also be a state librarian. The officers of the executive department, excepting the lieutenant-governor, shall during their terms of office reside at the seat of government, where they shall keep the public records, books, and papers. They shall perform such duties as are prescribed by this constitution and by law.

SEC. 2. No person shall be eligible to the office of governor or lieutenant-governor who has not been a citizen of the United States for nine years, or who has not attained the age of thirty years, and who has not been a resident of New Mexico for two years next preceding his election.

SEC. 3. Neither the governor nor the lieutenant-governor shall hold or exercise any office under the United States or under any other State or government.

SEC. 4. The governor shall be commander-in-chief of the military forces of the State. He shall have power to convene the legislature or the senate only on extraordinary occasions. He shall communicate to the legislature at each session the condition of the State, and make such recommendations as he shall deem expedient. He shall transact all necessary business of the State with officers of the government, or with other States, or with the United States, and may require information or opinions in writing from the officers of any executive department on any subject relating to the duties of their respective offices; and upon any question of law connected with his official duties he may require also the opinion in writing of the attorney-general. He shall take care that the laws are faithfully executed and the public peace preserved. He shall at stated times receive for his services a compensation to be fixed by law.

SEC. 5. The governor shall nominate, and, by and with the advice and consent of the senate, a majority of all the senators concurring, appoint all officers whose offices are created by this constitution, or which may be created by law, and whose appointments are not herein otherwise provided for, and no such officer shall be appointed or elected by the legislature or either branch thereof. Each officer so appointed shall hold his office until the beginning of the next regular session of the senate and until his successor is qualified; but he shall not hold over beyond the expiration of such session, nor shall he be then during the recess appointed to fill a vacancy in his office arising from the failure of the governor to nominate, or of the senate to confirm any person in his stead. A person once rejected by the senate shall not be renominated by the governor for the same office during the same session, except at the request of the senate, nor appointed to such office during the recess thereafter. Any vacancy in any office which is to be filled by appointment by and with the advice and consent of the senate, which may exist during the recess of the senate, shall be filled by the governor by appointment, to expire with the termination of the next session of the senate; but no person so appointed to fill a vacancy shall be appointed a second time to fill a vacancy in the same office. It shall be the duty of the governor, under such regulations as may be prescribed by law, to remove from office for gross neglect of duty, or for corrupt conduct in office, any officer in the State, except legislative and judicial officers.

SEC. 6. The governor shall have the power to remit fines and to grant reprieves, commutations, and pardons after conviction, except in cases of impeachment or in cases of persons punished by the legislature or by either house thereof, but he shall set forth in writing fully the grounds of all remissions, reprieves, commutations, and pardons, and report the same to the legislature at the next session.

SEC. 7. Every bill which shall have passed the senate and house of representatives shall before it becomes a law be presented to the governor; if he approves he shall sign it; but if not he shall return it with his objections to the house in which it originated, which house shall enter the objections at large on its journal, have the bill read and proceed to reconsider it. If, after such reconsideration, two-thirds of the members present shall agree to pass the bill, it shall be sent, together with the objections, to the other house, by which it shall likewise be reconsidered, and if approved by two-thirds of the members present it shall become a law; but in all such cases the vote of each house shall be determined by ayes and noes; and the names of persons voting for and against the bill shall be entered on the journal of each house respectively. If any bill shall not be returned by the governor within three days, Sundays excepted, after it shall be presented to him, the same shall become a law in like manner as if he had signed it, unless the legislature by adjournment prevents its return, in which case it shall not become a law, unless the governor shall sign and file it with the secretary of state within three days after such adjournment. When any bill appropriating money from the public treasury shall have passed both houses and be presented to the governor he shall have power to approve the same in whole or in part, and in the manner hereinbefore set out may return to the house in which it originated a copy of any part or parts of such bill which he may disapprove, with his objections thereto, when like proceedings shall be had with like effect as in the case of any bill returned by the governor as a whole.

SEC. 8. In case of a vacancy in the office of governor, or of his impeachment, or of inability on the part of the governor to discharge the duties of his office, the powers, duties, and emoluments of the office for the residue of the term, or until the disability shall be removed, shall devolve upon the lieutenant-governor. The lieutenant-governor shall be president of the senate, but shall vote only when the senate is equally divided. If there be no lieutenant-governor, or if the lieutenant-governor shall from any of the causes above specified become incapable of performing the duties of the office of governor, the president of the senate shall act as governor until the vacancy is filled or the disability removed; and if the president of the senate, from any of the above-named causes, shall become incapable of performing the duties of governor, the same shall devolve upon the speaker of the house of representatives.

SEC. 9. There shall be a seal ot the State, which shall be kept by the secretary of state and shall be called the "Great Seal of the State of New Mexico," and the seal of the Territory of New Mexico shall be the seal of the State until otherwise provided by law.

SEC. 10. The governor shall issue commissions, signed by him and countersigned by the secretary of state and sealed with the great seal, to all State and district officers and to such other officers as he may be by law required to commission.

SEC. 11. Each of the officers named in this article shall receive for his services a salary to be fixed by law. It shall be the duty of all such officers to collect in advance all fees prescribed by law for services rendered by them severally, and pay the same into the State treasury.

SEC. 12. Neither the State treasurer nor auditor of public accounts shall hold office for two consecutive terms, nor shall either immediately succeed the other in office.

ARTICLE VI.—*The judicial department.*

SEC. 1. The judicial power of this State shall be vested in a supreme court, district courts, probate courts, justices of the peace, and such other courts inferior to the supreme court, including courts of arbitration, as the legislature from time to time may establish.

SEC. 2. The supreme court, except as otherwise provided in this constitution, shall have only appellate jurisdiction in all actions, suits, and other proceedings. It shall have a general supervisory control over all inferior courts, under such regulations and limitations as may be prescribed by law.

SEC. 3. The supreme court and the justices thereof shall have power to issue all writs and process necessary to secure justice to parties, and to the exercise of its jurisdiction and the enforcement of its own judgments and decrees, and to hear and determine the same; and the exercise of such jurisdiction shall be regulated by law; but in no case removed into said court shall trial by jury or the taking of evidence on any question raised by the record ever be allowed.

SEC. 4. The supreme court shall consist of three justices, one of whom shall be styled the chief justice; but after ten years from the time when this constitution goes into effect the number may be increased by law to five. Their terms of office shall be six years, except those of the first three justices, of whom one shall hold office for two, one for four, and one for six years. A majority of the members of the court shall constitute a quorum.

SEC. 5. No person who is less than thirty or more than seventy years of age shall hold the office of justice of the supreme court, nor unless he has been a member of the bar for six years and a citizen of the United States and a resident of New Mexico for two years. Any such justice or any judge of a district court may be removed from office only after impeachment and conviction thereon for corruption, official malfeasance or nonfeasance, willful neglect of duty, or incompetency; but pending such impeachment he shall exercise none of the duties of his office.

SEC. 6. The justices of the supreme court shall be appointed by the governor, by and with the advice and consent of the senate, and their salaries shall be fixed by law, and shall not exceed five thousand dollars each per year. No two of such justices shall be appointed from residents of the same judicial district. The justice having the shortest time to serve shall be the chief justice.

SEC. 7. The supreme court shall hold at least one term in each year at the seat of government, but the legislature may from time to time direct that said court shall hold additional terms in any one or more judicial districts.

SEC. 8. The justices of the supreme court shall, by virtue of their office, be conservators of the peace throughout the State.

SEC. 9. The supreme court shall appoint a clerk thereof, who shall hold his office six years, subject to removal by the court. His compensation shall be fixed by law, and his duties shall be prescribed by law and by the rules of the supreme court.

SEC. 10. The governor shall designate so many district judges, to act as justices of the supreme court *ad interim*, as shall be necessary to constitute a quorum, whenever from any cause, in any matter pending therein, a majority of the justices thereof shall be unable or disqualified to act.

SEC. 11. Until otherwise provided by law, the State is hereby divided into four judicial districts, which shall be the first, second, third, and fourth districts.

The first district shall be composed of the counties of Santa Fe, Rio Arriba, San Juan, and Taos.

The second district shall be composed of the counties of Bernalillo, Valencia, and Socorro.

The third district shall be composed of the counties of Grant, Doña Ana, Sierra, and Lincoln.

The fourth district shall be composed of the counties of San Miguel, Mora, and Colfax.

SEC. 12. In each judicial district one judge of the district court shall be elected by the qualified electors thereof. His term of office shall be four years, and his salary shall be prescribed by law, not to exceed three thousand dollars per annum.

SEC. 13. Any person to be eligible to the office of judge of the district court shall be a citizen of the United States, a permanent resident of the district in which he is elected, at least thirty years of age, a practicing lawyer in good standing or a judge of the supreme or district court in the Territory or State of New Mexico for at least two years next preceding his election, and shall have been a practicing lawyer in some court of record in the United States for at least four years next preceding his election, or his service upon the bench of any court of record in the United States, when added to the time he shall have so practiced law, shall be equal to such four years.

SEC. 14. There shall be a district court for each county. The district courts shall have general unlimited chancery and common-law jurisdiction, which shall be kept distinct, and shall have appellate jurisdiction in all cases and matters decided in the probate courts and by justices of the peace, under such regulations as may be prescribed by law, and shall have a general control over all inferior courts.

SEC. 15. The district courts and judges thereof in vacation shall have power to issue writs of habeas corpus, mandamus, quo warranto, certiorari, injunction, prohibition, and all other original and remedial writs necessary to the exercise of their jurisdiction, with authority to hear and determine the same. They shall be conservators of the peace throughout the State.

SEC. 16. The time of holding the district courts shall be as provided by law, but at least two terms thereof shall be held annually in each organized county, except in such counties as may be attached for judicial purposes to other counties wherein such courts are held. Special terms of said courts may be had under such regulations as may be prescribed by law.

SEC. 17. Writs of error and appeals shall be allowed from the decisions of the district courts to the supreme court, under such regulations as shall be prescribed by law.

SEC. 18. Provision shall be made by law for holding district courts when from any cause the judge shall fail to attend, or if in attendance can not properly preside; and the district judges may be by law authorized to act for one another in the discharge of their official duties in such manner and under such circumstances as may be fixed by law.

SEC. 19. There shall be a clerk of the district court in each county wherein a term is held, who shall be elected by the qualified electors thereof at the same time and for the same term as herein provided for the judges of the district courts. His duties and compensation shall be prescribed by law. Such clerk shall keep the records of the district court at the county seat and be the custodian thereof and of the seal of said court.

SEC. 20. There shall be a probate court for each county, the jurisdiction of which shall be prescribed by law, and the judge thereof shall be elected by the voters of the county. His term of office shall be two years, and his qualifications, duties, and compensation shall be determined by law.

SEC. 21. A code of procedure and practice for the probate courts shall be prescribed by law, and until such code is prescribed the supreme court may make rules not inconsistent with this constitution and with law for the guidance of such courts.

SEC. 22. A clerk of the probate court for each county shall be elected by the qualified voters thereof, and his duties shall be prescribed by law.

SEC. 23. Regular terms of the probate courts shall be prescribed by law, but they shall always be open for the transaction of business, except on legal holidays and nonjudicial days.

SEC. 24. Any matter pending in a probate court which the judge thereof shall be disqualified to try or hear shall be transferred to the district court for the same county for trial or hearing.

SEC. 25. The tenure of office and jurisdiction of justices of the peace shall be regulated by law; but they shall not have jurisdiction of cases involving the title to land, or of cases where the amount involved, exclusive of costs, is over one hundred dollars, or of cases of felony, except as committing magistrates.

SEC. 26. The supreme, district, and probate courts shall be courts of record.

SEC. 27. The legislature shall provide by law for an appropriate seal for each of said courts of record.

SEC. 28. All process shall run in the name of the State of New Mexico, and all criminal prosecutions shall be conducted in the name and by the authority of the same. All indictments shall conclude "against the peace and dignity of the State of New Mexico."

SEC. 29. It shall be the duty of the legislature to provide for a general system of practice in all the courts of the State.

SEC. 30. The legislature may limit the power of the courts to punish for contempt.

SEC. 31. No justice or judge of any court of record shall, during his service as such justice or judge, practice law in any of the courts of this State or of the United States, or give advice in any case which may come before him.

SEC. 32. Provision may be made by law for the election of judicial officers at times different from the general elections.

SEC. 33. In case of a vacancy occurring in the office of judge of any of the courts of record to be elected under this constitution, from death, resignation, or otherwise, the governor shall fill the vacancy for the unexpired term by appointment, provided such unexpired term does not exceed one year. If such unexpired term shall exceed one year, then, to fill such vacancy, the governor, by proclamation, shall call a special election therefor, in the proper district or county; and in that case that part of the unexpired term preceding the qualification of the judge so elected at said special election shall be filled by the governor by appointment. The governor shall issue commissions to all justices or judges of courts elected or appointed.

SEC. 34. There shall be district attorneys, whose number, duties, jurisdiction, qualification, tenure of office, and compensation shall be determined by law. Each of said attorneys shall be elected by the people of the district or counties within which he is to act.

ARTICLE VII.—*Elective franchise.*

SEC. 1. The qualifications of voters shall be ascertained and declared by law; but no person shall have the right to vote at any election who is not a citizen of the United States and has not lived within the State at least twelve months before the day of election.

SEC. 2. No religious test shall be required for any office or for any vote at any election.

SEC. 3. Voters shall in all cases, except for treason, felony, or breach of the peace, be privileged from arrest during their attendance at elections, and in going to and returning therefrom.

SEC. 4. No person shall be permitted to vote at any election in the State, nor to hold a seat in the legislature nor any office in this State, who shall in due course of law have been convicted of bribery or corruption in connection with the election or appointment of any person to office.

SEC. 5. No person shall be permitted to vote at any election, or be eligible to any office in the State, or to a seat in the legislature, who shall in due course of law, in either civil or criminal proceedings, have been adjudged guilty of a failure to account for or pay over according to law any money for which he may be liable as a collector or holder of public money until he shall have so accounted for or paid over such money.

SEC. 6. Any person who may hereafter be engaged in a duel, either as principal or accessory before the fact, shall not be permitted to vote at any election, and shall be disqualified from holding a seat in the legislature or any office within the State.

SEC. 7. No person shall be deemed to have gained or lost residence by reason of presence or absence while employed in the service of the United States or of the

State, nor while a student at any school, nor while kept or confined in any public institution or prison.

Sec. 8. The legislature shall regulate by law, not inconsistent with this constitution, all matters relating to officers of election, the manner of conducting elections, and making returns thereof, and shall pass laws to prevent intimidation, disorder, or violence at the polls, and all corruption, fraud, or bribery in connection with elections or voting.

Sec. 9. All elections by the people shall be by ballot, and the person or persons who shall receive the highest number of votes shall be declared elected.

Sec. 10. The secrecy of the ballot shall be kept inviolate, except in cases of contested elections.

Sec. 11. The general election shall be held once in two years, on the first Tuesday after the first Monday in November in the even numbered years; and all terms of office of persons elected at such election shall begin on the first Tuesday after the first Monday of January next following.

Sec. 12. No election of city, town, or precinct officers shall be held at the same time as the general election.

Sec. 13. No person shall hold more than one lucrative office at the same time; but no appointment in the militia, nor the office of notary public, shall be considered a lucrative office.

Sec. 14. No member of either House of Congress, nor person holding any office under the United States, except postmasters below the second class and commissioners of the United States courts, shall be appointed to or hold any office in this State, or be eligible as a member of the legislature.

Article VIII.—*Apportionment.*

Sec. 1. The legislature at its first session after the census of 1890 made by the United States, and at its first session after each subsequent census by the United States, shall divide the State into senatorial districts and apportion the senators to such districts, and the representatives to the several counties, using said census as the basis for such apportionment, and such apportionment shall take effect at the next general election held thereafter.

Sec. 2. The representatives shall be apportioned by law to the counties after each census taken by the United States, as follows:

The basis of representation shall be ascertained by dividing the whole population of the State, excluding Indians not taxed, by the number of which the house is to consist and rejecting any fraction resulting from such division. The number of representatives to which each county is entitled shall be ascertained by dividing its population by the basis of representation aforesaid, excluding the fractional remainder, if any; and the additional representatives necessary to make up the number of which the house is to consist shall be then assigned to those counties which would otherwise have the largest fractions unrepresented. The senators shall be apportioned to the senatorial districts as nearly as practicable in the same manner.

Sec. 3. Until the State shall be divided into senatorial districts as provided in section 1 of this article said districts shall be constituted and numbered as follows:

The county of Colfax shall constitute the first district, which shall be entitled to one senator.

The county of Mora shall constitute the second district, which shall be entitled to one senator.

The counties of Mora and Colfax shall jointly constitute the third district, which shall be entitled to one senator.

The county of Taos shall constitute the fourth district, which shall be entitled to one senator.

The county of Rio Arriba shall constitute the fifth district, which shall be entitled to two senators.

The county of Santa Fe shall constitute the sixth district, which shall be entitled to two senators.

The county of San Miguel shall constitute the seventh district, which shall be entitled to four senators.

The county of Bernalillo shall constitute the eighth district, which shall be entitled to three senators.

The county of Valencia shall constitute the ninth district, which shall be entitled to one senator.

The county of Socorro shall constitute the tenth district, which shall be entitled to one senator.

The county of Sierra shall constitute the eleventh district, which shall be entitled to one senator.

The county of Grant shall constitute the twelfth district, which shall be entitled to one senator.

The county of Dona Ana shall constitute the thirteenth district, which shall be entitled to one senator.

The counties of Dona Ana and Grant shall jointly constitute the fourteenth district, which shall be entitled to one senator.

The county of Lincoln shall constitute the fifteenth district, which shall be entitled to one senator.

The counties of San Juan and Bernalillo shall constitute the sixteenth district, which shall be entitled to one senator.

The counties of Socorro, Valencia, and Lincoln shall constitute the seventeenth district, which shall be entitled to one senator.

SEC. 4. Until an apportionment of the representatives shall be made in accordance with section 1 of this article, they shall be divided among the several counties of the State as follows:

The county of Colfax shall have three representatives; the county of Mora three; the county of Taos two; the county of Rio Arriba three; the county of San Juan one; the county of Santa Fe four; the county of San Miguel nine; the county of Bernalillo six; the county of Valencia two; the county of Socorro three; the county of Sierra two; the county of Grant three; the county of Dona Ana three, and the county of Lincoln two.

SEC. 5. One Representative in the Congress of the United States shall be elected from the State at large, at the first election under the constitution, and thereafter in such manner as may be prescribed by law. When a new apportionment shall be made by Congress the legislature shall divide the State into Congressional districts accordingly.

ARTICLE IX.—*Education.*

SEC. 1. Provision shall be made by law for the establishment and maintenance of a uniform system of public schools, which shall be open to, and sufficient for the education of, all the children in the State, and shall be under the absolute control of the State, and free from sectarian or church control; and no other or different schools shall ever receive any aid or support from public funds. No sectarian tenet, creed, or church doctrine shall be taught in the public schools.

SEC. 2. The principal of all funds arising from the sale or other disposal of lands or other property granted, donated, or intrusted to this State for educational purposes, or coming to the State by escheat, shall constitute a permanent school fund which shall be forever preserved inviolate and undiminished, and the income therefrom shall be faithfully applied to the objects of the original grants, donations, or trusts, subject to the provisions and restrictions of this constitution, and when not inconsistent with such objects, shall be used for common-school purposes throughout the State in proportion to the number of children of school age. But no part of such funds, nor of any other funds created or authorized by law for educational purposes, shall ever be applied toward the maintenance, support, or aid of any school or other institution in the management of which any religious or other sect has any part, or which is not under the absolute control of the State. The provisions of this and the last preceding section are hereby declared to be irrevocable without the consent of the United States and the people of this State.

SEC. 3. The control, management, and direction of all public schools, and of all educational and school funds, land, and other property belonging to the State, or any municipality or district therein, or at its disposal, shall, under such regulations as may be prescribed by law, be vested in the State board of education and public lands. The legislature may provide for district or other school officers, subordinate to said board. The State treasurer shall be the custodian of all educational and school funds, except those arising in each county from taxation and fines, of which the county treasurer shall be the custodian.

SEC. 4. The principal of the permanent school fund shall be invested in bonds of the United States, or the duly authorized bonds of the State or territory of New Mexico, or of any county therein whose indebtedness at the time shall not exceed five per centum of its assessed valuation. In case sufficient of the above mentioned State, Territorial, or county bonds can not be obtained, the legislature, by a vote of three-fourths of the members elected to each house, may change the mode of investing said funds. All losses from such fund, however occurring, shall be reimbursed by the State.

SEC. 5. The legislature shall provide by law for levying and collecting taxes for school purposes, as follows: First. An annual tax of not less than two and one-half mills on the dollar of assessed valuation of all the property in each county, to be distributed throughout the county in proportion to the number of children, for the maintenance of schools and the construction of schoolhouses. Second. An annual tax not exceeding two and one-half mills on the dollar of assessed valuation upon all the property in any incorporated town or city, or any school district having not less than one thousand inhabitants, to be levied according to the vote of a majority of the payers of taxes on taxable property therein, for the maintenance of schools and the construction of schoolhouses within such town, city, or district.

SEC. 6. Provision shall be made by law for teaching the principles of the constitutions of the United States and of this State in the common schools. All teachers in the public schools shall be citizens of the United States, properly qualified, and persons of good moral character.

SEC. 7. No religious test shall ever be required of any person as a condition of admission into any public educational institution of the State, either as teacher or student; and no teacher or student of any such institution shall ever be required to attend or participate in any religious service whatever; nor shall any distinction or classification of pupils be made on account of race or color.

SEC. 8. The legislature shall provide by appropriate legislation for supplying the pupils of the public schools with the necessary text-books at public expense, under such restrictions as shall prevent such text-books being changed oftener than once in five years. It shall also pass laws to prohibit any teacher, director, or other officer being interested in the sale of books, apparatus, or furniture used in the public schools.

ARTICLE X.—*Public lands.*

SEC. 1. All lands granted to the State by Congress, all lands acquired by gift, grant, or devise, shall be public lands of the State to be disposed of as hereinafter provided for the respective purposes of such gifts, grants, or devises; and none of such lands, nor any estate or interest therein, shall ever be disposed of except in pursuance of general laws providing for such disposition, nor unless the full market value of the estate or interest disposed of, to be ascertained in such manner as may be provided by this constitution and laws in conformity herewith, be paid to the State; nor shall any lands which the State may hold by grant from the United States be disposed of except in the manner and for at least the price prescribed in the grant thereof, if the same are so prescribed, without the consent of the United States.

SEC. 2. The governor, secretary of state, auditor of public accounts, attorney-general, and superintendent of public instruction shall constitute a board which shall be styled "the State board of education and public lands," and in addition to the powers and duties in this constitution elsewhere provided, and subject to the provisions of this article and laws passed in pursuance thereof, shall have control of all such public lands and of the appraisement, sale, rental, and disposal thereof, and the investment of the funds arising therefrom, under the same limitations as those provided in relation to the school fund.

SEC. 3. The proceeds of all such lands or of other property received by the State in like manner as such lands, shall constitute and remain permanent funds, of which the interest and income, but no part of the principal, shall be applied to the specific objects of the original gifts, grants, or devises. The principal of each fund shall be preserved inviolate and undiminished, and no part of any specific fund shall be diverted from its designated object, or transferred to any other. The State shall make good all losses from any of such funds.

SEC. 4. The public lands of the State shall be classified by the said board of education and public lands as follows:

1. Lands which are valuable only for grazing purposes.
2. Lands which are principally valuable for timber, salt lakes or springs, stone or other minerals upon them.
3. Agricultural lands.
4. Lands within the limits of any town or city, or within three miles of such limits.

Any of such lands shall be reclassified whenever by reason of increased facilities for irrigation or otherwise they may be subject to a different classification.

SEC. 5. The State board of education and public lands shall cause all the lands of the different classes to be appraised by sworn appraisers, part of whom at least shall be residents of the county wherein the lands to be appraised are situate, and after all such lands have been appraised said board shall designate for sale such lands as they may think most advantageous for the public interest to be sold. But not more than one-fourth or the lands belonging to any one of the said classes shall be sold during any period of five years, commencing with the date on which this constitution goes into effect.

SEC. 6. All sales of school lands shall be held at the county seat of the county in which the land to be sold is situate, after sixty days' advertisement of the same in a newspaper of general circulation in such county, and one at the seat of government. Such sale shall be at public auction to the highest bidder, upon such terms of payment as the said board may deem best for obtaining the best price, but no lands shall be sold for less than their appraised value, and the interest on any deferred payments shall not be less than 6 per cent per annum, payable annually. All lands designated for sale and not sold within two years after the appraisement shall be reappraised before they are sold. The State shall in no case part with the title to any lands until full payment has been made therefor.

SEC. 7. The lands of the fourth class shall be sold in subdivisions of not more than five acres each; those of the first class in tracts not exceeding one section; and those of the smaller classes in the smallest subdivisions into which they may have been divided, but in no case shall they be sold in larger tracts than 160 acres.

SEC. 8. The legislature may provide by law for leasing the public lands for periods not exceeding five years and in quantities not exceeding one section to any one person or company; but such leasing shall be to the highest bidder at public auction, after notice as heretofore provided in case of sale. All rents shall be paid annually in advance.

SEC. 9. No law shall ever be enacted granting any privileges by reason of the occupation, cultivation, or improvement of any public lands of the State subsequent to the survey thereof by the United States. No claims for such occupation, cultivation, or improvement of any such lands shall ever be recognized, nor shall such occupation, cultivation, or improvement ever be used to diminish the purchase price of the public lands.

SEC. 10. The legislature shall pass suitable laws for the safe-keeping, transfer, and disbursement of the funds arising from the sale of the public lands, and of all other public moneys and funds. No custodian of any such moneys or funds shall in any manner use or loan any part thereof for any private purpose or deposit the same in any bank or with any person, corporation, or association otherwise than in the name of the State of New Mexico or of the county to which such moneys or funds belong; and every violation of the foregoing provision shall constitute an embezzlement of so much of the said moneys or funds as shall be so used, loaned, or deposited, and shall be felony, and any failure to pay over, produce, or account for any of the public moneys or funds intrusted to such custodian, as by law required or demanded, shall be deemed prima facie evidence of embezzlement.

ARTICLE XI.—*Assessment and taxation.*

SEC. 1. The rate of assessment and taxation shall be uniform, and taxes shall be levied upon such property as the legislature shall prescribe, except as otherwise herein provided.

SEC. 2. The legislature shall provide at each regular session for raising sufficient revenue to defray the current expenses of the State for two years.

SEC. 3. The legislature shall not levy in any one year a higher rate of taxation than one per centum on the value of the taxable property within the State, except to repel invasion or suppress insurrection.

SEC. 4. The legislature shall have power to levy taxes upon particular articles and upon occupations, which shall be uniform as to the class of persons and property upon which they operate.

SEC. 5. The legislature may also impose a tax upon all incomes in excess of two thousand dollars a year.

SEC. 6. The stock of any company or corporation shall not be taxed without making a proportionate deduction for any property of that company or corporation which may have been taxed.

SEC. 7. The legislature may provide for the levy and collection of an annual poll tax of not more than one dollar on each poll, which shall be applied to the support of public schools in the school district in which it is collected.

SEC. 8. There shall be a State board of equalization, consisting of the governor, secretary of state, auditor of public accounts, state treasurer, and attorney-general. The duty of the State board of equalization shall be to adjust and equalize the valuation of real and personal property among the several counties of the State. Such board shall also perform such other duties relating to taxation as may be prescribed by law.

SEC. 9. The legislature shall have no power to release or discharge any county, city, town, township, school district, or other municipal corporation or subdivision of the State, from its proportionate share of taxes levied for any purpose except by a four-fifths vote.

SEC. 10. The property of the State and of all counties, towns, cities, and school districts, and other municipal corporations, public libraries, lots with the buildings thereon when said buildings are used solely for religious worship or for educational or charitable purposes, and all cemeteries not used or held for private or corporate profit, shall be exempt from taxation. Mining claims before patent shall be taxed only upon the gross output in a manner to be prescribed by law.

SEC. 11. The power to license and tax corporations or corporate property shall never be relinquished by the State or any subdivision thereof.

SEC. 12. The legislature may exempt from taxation, to each head of a family, property to the amount of three hundred dollars.

SEC. 13. The State shall incur no debt for any purpose whatever, including existing indebtedness, in excess of the amount of five hundred thousand dollars, but this shall not be construed to impair or affect the liability of the State for debts of the Territory of New Mexico.

SEC. 14. The credit of the State, or any subdivision thereof, shall not be granted to or in aid of any person, association, or corporation, nor shall the State assume the debts or liabilities of any county, city, town, township, school district, or other municipal corporation or subdivision of the State, unless such debt shall have been created to repel invasion, suppress insurrection, or defend the State in war.

SEC. 15. No money shall be drawn from the treasury except in pursuance of specific appropriation made by law.

ARTICLE XII.—*Municipal corporations.*

SEC. 1. Cities and towns shall not be incorporated by special laws; but the legislature shall provide by general laws for the incorporation, organization, and classification in proportion to the population of the cities and towns, which laws may be altered, amended, or repealed by general laws. Cities and towns heretofore incorporated may become organized under such general laws whenever a majority of the electors at a general election shall so determine, under such provisions therefor as may be made by the legislature.

SEC. 2. Any county, or incorporated city or town, may make and enforce within its limits all such local, police, sanitary, and other regulations as are not in conflict with its charter or with the general laws.

SEC. 3. No municipal corporation, or quasi-municipal corporation, in the State shall incur any debt, including existing indebtedness, for any purpose whatever in excess of five per centum on the taxable property within the limits of such corporation, as shown by the last regular assessment made for the purpose of taxation, nor in any sum whatever in excess of its yearly income or revenue without the assent of a majority of the qualified electors thereof, who shall be payers of taxes on property therein. But this shall not be construed to impair or affect the liability of any such corporation for any existing indebtedness.

SEC. 4. No county, town, city or other municipal or quasi-municipal corporation, by vote of its citizens or otherwise, shall ever become a stockholder in any joint-stock company, corporation, or association whatever, or raise money for, or make donation to, or loan its credit to or in aid of any such company, corporation, or association.

SEC. 5. The several counties of the Territory of New Mexico, as they are now provided for by law, are hereby declared to be the counties of this State until otherwise established or changed by law.

SEC. 6. Provision shall be made by general laws for the creation and organization of new counties, but the question of the creation of any new county shall be submitted to a vote of the qualified electors in the territory embraced within the proposed new county before any such county shall be created; but no county now established shall be reduced, nor shall any new county be formed, so as to have less population than will be sufficient to entitle it to at least one representative in the legislature.

SEC. 7. No county now established as aforesaid shall be reduced to an area of less than twelve hundred and ninety-six square miles, and no new county shall be formed containing less than twelve hundred and ninety-six square miles, until twelve years after this constitution goes into effect.

SEC. 8. New or unorganized counties may for the purposes of administration be temporarily annexed to such other county or counties as may be most convenient.

SEC. 9. Whenever territory is taken from any county or counties and attached to another, or whenever a new county is formed, the county to which said territory is attached, or the new county, shall be liable to pay its ratable proportion of all the then existing liabilities of the county or counties from which such territory is taken or from which such new county is formed, less the same ratable proportion of the value of the county buildings and property of the county or counties from which such territory is taken; provided, that such portion so taken shall have been a portion of the county from which the same is taken for not less than four years previously.

SEC. 10. In any county where the county seat has not been fixed, the question of its place shall be submitted to the electors of the county at a general election. The place receiving the majority of all votes cast by qualified electors shall be the county seat; but in the formation of new counties the county seat may be fixed temporarily by the legislature.

SEC. 11. No county seat shall be changed until a proposition designating the place to which the removal is proposed shall have been submitted to the electors of the county, and shall have received two-thirds of the vote cast by qualified electors. No person shall vote on such a proposition who shall not have resided in the county for six months, and in the election precinct for ninety days next preceding the election. A proposition to change the location of the county seat, after having been so submitted, shall not again be submitted to the electors for five years.

SEC. 12. All county and precinct officers shall be elected by the qualified electors of the county or precinct respectively, and city, town, and village officers shall be elected or appointed as may be prescribed by law.

ARTICLE XIII.—*Corporations.*

SEC. 1. All existing charters or grants of special or exclusive privileges, under which the corporations or grantees shall not have organized and commenced business in good faith at the time of the adoption of this constitution, shall thereafter have no validity, except in such corporations or grantees whose time to organize under their charter or grant has not expired at the time of the adoption of this constitution.

SEC. 2. The legislature shall provide the method whereby the courts may revoke or annul any charter or incorporation existing and revocable at the time this constitution goes into effect, or that may thereafter be created, whenever in its opinion it may be injurious to the citizens of the State, in such manner, however, that no injustice shall be done to the corporators or creditors.

SEC. 3. In all elections for directors or managers of incorporated companies, every stockholder shall have the right to vote in person or by proxy the number of shares of stock owned by him, for as many persons as there are directors or managers to be elected, or to cumulate said shares and give one candidate as many votes as the number of directors or managers multiplied by the number of his shares of stock shall equal, or to distribute them on the same principle among as many candidates as he shall think fit; and such directors or managers shall not be elected in any other manner.

SEC. 4. No corporation shall acquire or hold property, or engage in business in this State, without having a designated place of business and an authorized agent within the State upon whom process may be served.

SEC. 5. No railroad, telegraph, express, or other corporation, or the lessees or managers thereof, shall consolidate its stock, property, or franchises with any other railroad, telegraph, express, or other corporation owning or having under its control a parallel or competing line. And in no case shall any consolidation take place except upon at least sixty days' public notice to all stockholders in such manner as may be provided by law.

SEC. 6. No street or other railroad shall be constructed upon any street or highway within any incorporated city, town, or village without the consent of the local authorities having the control of the street or highway proposed to be occupied by such street or other railroad.

SEC. 7. The term "corporation," as used in this article, shall not be understood to embrace municipalities or political divisions of the State unless otherwise expressly stated; but it shall be held and construed to include all associations and joint-stock companies having any of the powers and privileges of corporations not possessed by individuals or partnerships.

SEC. 8. Any combination between individuals, associations, or corporations having for its object, or which shall operate to control, the price or exchange of any article of manufacture or commerce, product of the soil or mine, is hereby prohibited and declared unlawful and against public policy; and the legislature shall provide by law such penalties and forfeitures as shall be sufficient to prevent all such unlawful combinations.

SEC. 9. All railroad, transportation, and express companies organized under the laws of this or of any other State doing business in the State shall be common carriers, and all railroads owned or controlled by such companies shall be public highways, and the legislature shall pass laws to correct abuses and prevent unjust discrimination and extortion in the rates of freight, express, and passenger tariffs on the different railroads, and in the charges of telephone, telegraphic, and insurance companies in this State, and enforce such laws by adequate penalties, to the extent, if necessary for that purpose, of forfeiture of their property and franchise. The question as to the existence of unjust discrimination and extortion shall be a judicial question to be determined by the courts.

SEC. 10. Each stockholder in all incorporated companies, except corporations organized for banking or insurance purposes, shall be liable for the debts of the corporation to the amount of his unpaid stock and no more, and one or more stockholders may be joined as parties defendant in suits to recover upon this liability.

SEC. 11. Corporations shall not issue stock except to bona fide subscribers therefor or their assignees; nor shall any corporation issue any bond or other obligation for the payment of money, except for money or property received or labor done. The stock of corporations shall not be increased except in pursuance of a general law, nor shall any law authorize the increase of stock without the consent of the person or persons holding the larger amount in value of the stock, nor without due notice of the proposed increase having been previously given in such manner as may be prescribed by law. All fictitious increase of stock or indebtedness shall be void.

SEC. 12. No corporation organized outside the limits of this State shall be allowed to transact business within the State on more favorable conditions than are prescribed by law to similar corporations organized under the laws of this State.

SEC. 13. No corporation shall alienate or lease any franchise so as to relieve the franchise or property held thereunder from the liabilities of the lessor or grantor, lessee or grantee, contracted or incurred in the operation, use, or enjoyment of such franchise or any of its privileges.

SEC. 14. The property and franchises of incorporated companies shall be subject to the right of eminent domain, the same as the property of individuals.

SEC. 15. No corporation, association, or individual shall issue or put in circulation as money anything but the lawful money of the United States. Each stockholder of any bank or insurance company shall be individually and personally liable, equally and ratably, and not one for another, for all contracts, debts, and engagements of such bank or insurance company accruing while they remain such stockholders, to the extent of the amount of their stock therein at the par value thereof, in addition to the amount invested in such shares.

SEC. 16. Any president, director, manager, cashier, or other officer of any banking institution, who shall receive or assent to the reception of deposits after he shall have knowledge of the fact that such banking institution is insolvent or in failing circumstances shall be individually responsible for such deposits so received.

ARTICLE XIV.—*Mining and water rights.*

SEC. 1. There may be established and maintained the office of commissioner of mines, the duties and salary of which shall be prescribed by law. When said office shall be established the governor shall, with the advice and consent of the senate, appoint thereto a person known to be competent, whose term of office shall be two years.

SEC. 2. The legislature shall provide by law for the proper ventilation of mines, the construction of escapement shafts, and such other appliances as may be necessary to protect the health and secure the safety of the workmen therein, and shall prohibit the employment in the mines of children under twelve years of age.

SEC. 3. The legislature may make such regulations from time to time as may be necessary for proper and equitable drainage of mines.

SEC. 4. The legislature may provide that the science of mining and metallurgy be taught in one or more of the institutions of learning under the patronage of the State.

SEC. 5. Whenever by priority of possession rights to the use of water for mining, agriculture, manufacturing, or other purposes have vested and accrued, the possessors and owners of such vested rights shall be maintained and protected in the same, and the right of way for the construction of ditches and canals for the purposes herein specified is acknowledged and confirmed, subject to the restrictions of this constitution as to taking property for public or private use.

ARTICLE XV.—*Forestry.*

SEC. 1. The legislature shall enact laws to prevent the destruction of and to preserve the forests on the lands of the State and upon any part of the public domain the control of which may be conferred by Congress upon the State.

SEC. 2. The legislature may provide by law that the increase in value of private lands, caused by the planting of hedges, orchards, and forests thereon, shall not for a limited time be taken into account in assessing such lands for taxation.

ARTICLE XVI.—*Miscellaneous.*

SEC. 1. In addition to the State University, the Agricultural College, the Asylum for the Insane, and the School of Mines already established by law in the Territory of New Mexico, one or more State normal schools shall be provided for.

SEC. 2. Public institutions may be established by law for the maintenance, care, and instruction of deaf and dumb, blind, or indigent sick persons, orphans, or paupers; and whenever any such institution shall have been so established and put in operation, no other institution for the same purpose shall receive any aid or support from public funds; but until such institutions are so established and put in operation, provision may be made by law for the maintenance, care, and instruction of such persons by individuals or in other institutions. Such aid and support shall be under the inspection of proper officers appointed for that purpose, and every such individual or other institution shall make itemized annual reports concerning such aid and support to the governor for the information of the legislature.

SEC. 3. Public money or property shall never be used or appropriated for private purposes, nor for the aid or support of any institution not under the absolute control of the State, except for the time as in the foregoing section mentioned.

SEC. 4. The compensation of no officer shall be by law increased or diminished after his election, or during his term of office.

SEC. 5. All officers who are by law charged with the duty of collecting fees for services which are to be paid into any public fund shall collect the same in advance, and shall be responsible for any loss resulting from a failure so to do.

SEC. 6. Except as otherwise provided in this constitution, every officer, unless sooner removed according to law, shall hold his office during the term for which he shall have been elected or appointed, and until his successor shall be duly qualified.

SEC. 7. Each officer elected or appointed to office under the authority of this constitution shall take and subscribe an oath or affirmation to support the Constitution of the United States and of this State, and to faithfully discharge the duties of his office, which oath or affirmation shall be filed in the office of the secretary of state.

ARTICLE XVII.—*Amendments.*

SEC. 1. Amendments to this constitution may be proposed in either branch of the legislature, and if the same shall be agreed to by two-thirds of all the members elected to the two houses, voting separately, such proposed amendments shall, with the ayes and nays thereon, be entered upon their journals, and it shall be the duty of the legislature to submit such amendments to the electors of the State at the next general election, and cause the same to be published without delay for at least six consecutive weeks prior to said election in not less than one newspaper of general circulation (if there be such newspaper) published in each county, and if the majority of the electors shall ratify the same, such amendments shall become a part of this constitution.

SEC. 2. If more than one amendment is proposed, they shall be submitted in such manner that the electors shall vote for or against each of them separately.

SEC. 3. Whenever two-thirds of the members elected to each branch of the legislature shall deem it necessary to call a convention to revise or amend this constitution, they shall recommend the electors to vote at the next general election for or against the convention, and if a majority of all the electors voting at such election shall have voted for a convention, the legislature at its next session shall provide by law for calling the same, and such convention shall consist of a number of members not less than double the number of senators at that time in the legislature. The legislature shall prescribe the manner of voting for said convention.

SEC. 4. Any constitution adopted by such convention shall not take effect until it has been submitted to and ratified by the people.

SEC. 5. Nothing in this article contained shall be construed to authorize any amendment or revision or repeal of any article or section of this constitution, which by its terms is made irrevocable, except as therein provided.

ARTICLE XVIII.—*Compact with the United States.*

SEC. 1. The State of New Mexico is an inseparable part of the Federal Union and the Constitution of the United States is the supreme law of the land.

SEC. 2. The legal debts and liabilities of the Territory of New Mexico shall be assumed and paid by this State.

SEC. 3. Perfect toleration of religious sentiment shall be secured, and no inhabitant of this State shall ever be molested in person or property on account of his or her mode of religious worship, nor shall any preference be given by law to any religious establishment. No religious test shall be required for any office or for any vote at any election; nor shall any person be incompetent to testify on account of his or her opinions on matters of religious belief, nor be questioned in any court touching such opinions so as to affect the weight of his or her testimony.

SEC. 4. The people inhabiting this State do agree and declare that they forever disclaim all right and title to the unappropriated public lands lying within the boundaries thereof, and to all lands lying within said limits owned or held by any Indian or Indian tribes, and that until the title thereto shall have been extinguished by the United States the same shall be and remain subject to the disposition of the United States, and said Indian lands shall remain under the absolute jurisdiction and control of the Congress of the United States; that the lands or other property belonging to citizens of the United States residing without the State shall never be taxed at a higher rate than the lands or other property belonging to residents thereof; that no taxes shall be imposed by the State on lands or property therein belonging to or which may hereafter be purchased by the United States or reserved for its use. But nothing herein shall preclude the State from taxing as other lands are taxed any lands owned or held by any Indian who has severed his tribal relations, and has obtained from the United States or from any person or source a title thereto by patent or other grant, save and except such lands as have been or may be granted to any Indian or Indians under any act of Congress containing a provision exempting the lands thus taxed from taxation; but all such lands shall be exempt from taxation by this State so long and to such extent as such act of Congress may prescribe.

SEC. 5. Provision shall be made for the establishment and maintenance of a system of public schools, which shall be open to all the children of this State and free from sectarian control, and no other or different schools shall receive any aid or support from the public treasury.

SEC. 6. The ordinances and provisions in this article contained are hereby declared to be irrevocable without the consent of the United States and the people of this State.

SCHEDULE AND ORDINANCE.

SEC. 1. All writs, actions, prosecutions, claims, liabilities, and obligations in favor of or against the Territory of New Mexico and all rights of individuals and bodies corporate shall continue as if no change had taken place in this government; and all process which may before the organization of the judicial department under this constitution be issued under the authority of the Territory of New Mexico shall be as valid as if issued in the name of the State.

SEC. 2. All property and rights of the Territory and of the several counties, subdivisions, and political bodies corporate of or in the Territory, including fines, penalties, forfeitures, debts, claims, and recognizances, obligations, and other undertakings heretofore taken or which may be taken before the organization of the judicial department under this constitution, to or for the use of the Territory of New Mexico or any county, subdivision, or political body corporate, officer or otherwise, to or for the public, shall inure to the State or remain to the county, local subdivision, corporation, officer, or public, as the case may be, as if the change of government had not been made, and may be sued for and recovered accordingly. All criminal prosecutions and penal actions which have arisen or may arise before the organization of the judicial department under this constitution, and which shall then be pending, may be prosecuted to judgment and execution in the name of the State.

SEC. 3. All crimes and misdemeanors committed against the Territory of New Mexico shall be punished by the State as they might have been punished by the Territory if the change of government had not been made.

SEC. 4. All laws in force in the Territory of New Mexico when this constitution takes effect which are not repugnant to this constitution shall remain in force until they expire by their limitation or be altered or repealed by the legislature.

SEC. 5. This constitution shall take effect and be in full force immediately upon the admission of New Mexico as a State.

SEC. 6. All officers who may be holding their offices and appointments in the Territory of New Mexico under the authority of the United States or under the authority of said Territory at the time of the admission of New Mexico as a State shall continue to hold and exercise their respective offices and appointments until superseded by the State authorities under this constitution.

SEC. 7. All cases pending in the supreme court of the Territory of New Mexico, except cases arising under the Constitution and laws of the United States, shall be removed into the supreme court hereby created, to be there heard and determined as though originally brought up to that court from the district court of the State; and if any such case is remanded for further or other proceedings it shall be sent back to the district court of the State for the county in the district court for which, under the Territorial form of government, the original judgment or decree was entered.

SEC. 8. The district court for each county is declared to be a successor to and a continuation of the district court established in such county by the Territorial legislature, and all pending suits, matters, and proceedings, both civil and criminal, shall be tried, heard, and determined by the new court hereby established, and the files, dockets, and other records shall be continuous and unbroken.

SEC. 9. The probate court for each county shall be a continuation of the probate court under the Territorial government, and the record and files thereof shall be continuous and unbroken.

SEC. 10. Until otherwise provided by law, the seals now in use by the supreme, district, and probate courts of the Territory are hereby declared to be the seals of the supreme, district, and probate courts, respectively, of the State.

SEC. 11. This constitution shall be submitted for adoption or rejection to a vote of the electors qualified by law to vote at all elections in the Territory of New Mexico, at a special election to be held at the same time as the general election, on the first Tuesday after the first Monday in November, A. D. 1890, unless the Congress of the United States shall sooner pass an enabling act for the Territory of New Mexico, in which case, unless the time for an election is fixed in said act, this constitution shall be submitted to the people at an election to be held within ninety days after the passage of such act, to be called by a proclamation of the governor of the Territory of New Mexico, such proclamation to be issued not less than forty days before the day of the election. Said election shall be conducted in all respects in the manner provided by the laws of the Territory for general elections, and the returns thereof shall be made and canvassed in the same manner and by the same authority as provided in cases of general elections, and abstracts of such returns duly certified shall be transmitted to the board of canvassers, which said board of canvassers shall consist of the governor and secretary of the Territory and the president of this convention. Said board shall canvass the votes so returned and certify the same and declare the result of said election in the same manner as is required by law for the election of a Delegate in Congress.

At the said election all ballots which may be cast in favor of the constitution shall have written or printed on them the words "for the constitution," and all ballots which may be cast against the constitution shall have written or printed on them the words "against the constitution," and such ballots shall be counted for or against the constitution accordingly.

Said board of canvassers shall also make and file with the secretary of the Territory a certificate setting forth the number of votes cast for the constitution and the number cast against it, and shall also file a certificate certifying whether the said constitution has been ratified by a majority of all the votes cast for or against it or not, copies of which certificate shall be forwarded by the secretary of the Territory, duly certified by him, one to the Speaker of the House of Representatives and another to the President of the Senate of the Congress of the United States; and said secretary shall also forward along with each of said certificates, and attach thereto, a duly certified copy of this constitution.

SEC. 12. Immediately upon the admission of the Territory as a State the governor of the Territory, or in case of his absence or failure to act, the secretary of the Territory, or in case of his absence or failure to act, the president of this convention, shall issue a proclamation, which shall be published and a copy thereof mailed to the chairman of the board of county commissioners of each county, calling an election by the people of all State, district, county, precinct, and other officers created and made elective by this constitution, and fixing a day for such election, which shall not be less than forty days after the date of such proclamation nor more than ninety days after the admission of the Territory as a State.

SEC. 13. The board of county commissioners of the several counties shall thereupon order such election for said day, and shall cause notice thereof to be given in the manner and for the length of time provided by the laws of the Territory in cases of general election for Delegate to Congress and county and other officers.

Every qualified elector of the Territory at the date of said election shall be entitled to vote thereat. Said election shall be conducted in all respects in the same manner as provided by the laws of the Territory for general elections, and the returns thereof shall be made and canvassed in the same manner and by the same authority as provided in cases of such general elections, but returns for all State and district officers and members of the legislature shall be made to the canvassing board herein provided for.

SEC. 14. Thirty days after such election for State, district, county, precinct, and other officers (or on the following day if said thirtieth day shall fall on Sunday), said board of canvassers shall assemble at the seat of government as now fixed by law and proceed to canvass the votes for all State and district officers and members of the legislature in the manner provided by the laws of the Territory for canvassing the votes for Delegate to Congress, and they shall issue certificates of election to the persons found to be elected to said offices severally, and shall make and file with the secretary of the Territory an abstract certified by them of the number of votes cast for each person for each of said offices and of the total number of votes cast in each county.

SEC. 15. The canvassing board of the various counties shall issue certificates of election to the several persons found by them to have been elected to the several county and precinct offices.

SEC. 16. All officers elected at such election shall, within thirty days after they have been declared elected. if New Mexico shall have been then admitted as a State, and if not, within thirty days after New Mexico shall have been admitted as a State, take the oath required by this constitution, and give the same bond as required by the laws of the Territory to be given in cases of like officers of the Territory, and shall thereupon enter upon the duties of their respective offices; but the legislature may require by law all such officers to give other or further bonds.

SEC. 17. All officers elected at such election shall hold their offices until the legislature shall provide by law in accordance with this constitution for the election of their successors and until such successors shall be elected and qualified.

SEC. 18. The governor-elect of this State, immediately upon his qualifying and entering upon the duties of his office, shall issue his proclamation convening the legislature of the State at the seat of government as now fixed by law, on a day to be named in such proclamation, and which shall not be less than fifteen nor more than thirty days after the date of such proclamation. Within ten days after the organization of the legislature both houses thereof shall proceed to elect, as provided by law, two Senators of the United States for the State of New Mexico. At said election the two persons who shall receive a majority of all the votes cast by the senators and representatives of the State shall be elected as such United States Senators, and shall be so declared by the presiding officers of the joint session of said two houses.

The presiding officers of the senate and house of representatives shall issue a certificate of election to each of said Senators, certifying the fact of his election, which certificate shall also be signed by the governor and attested by the secretary of state.

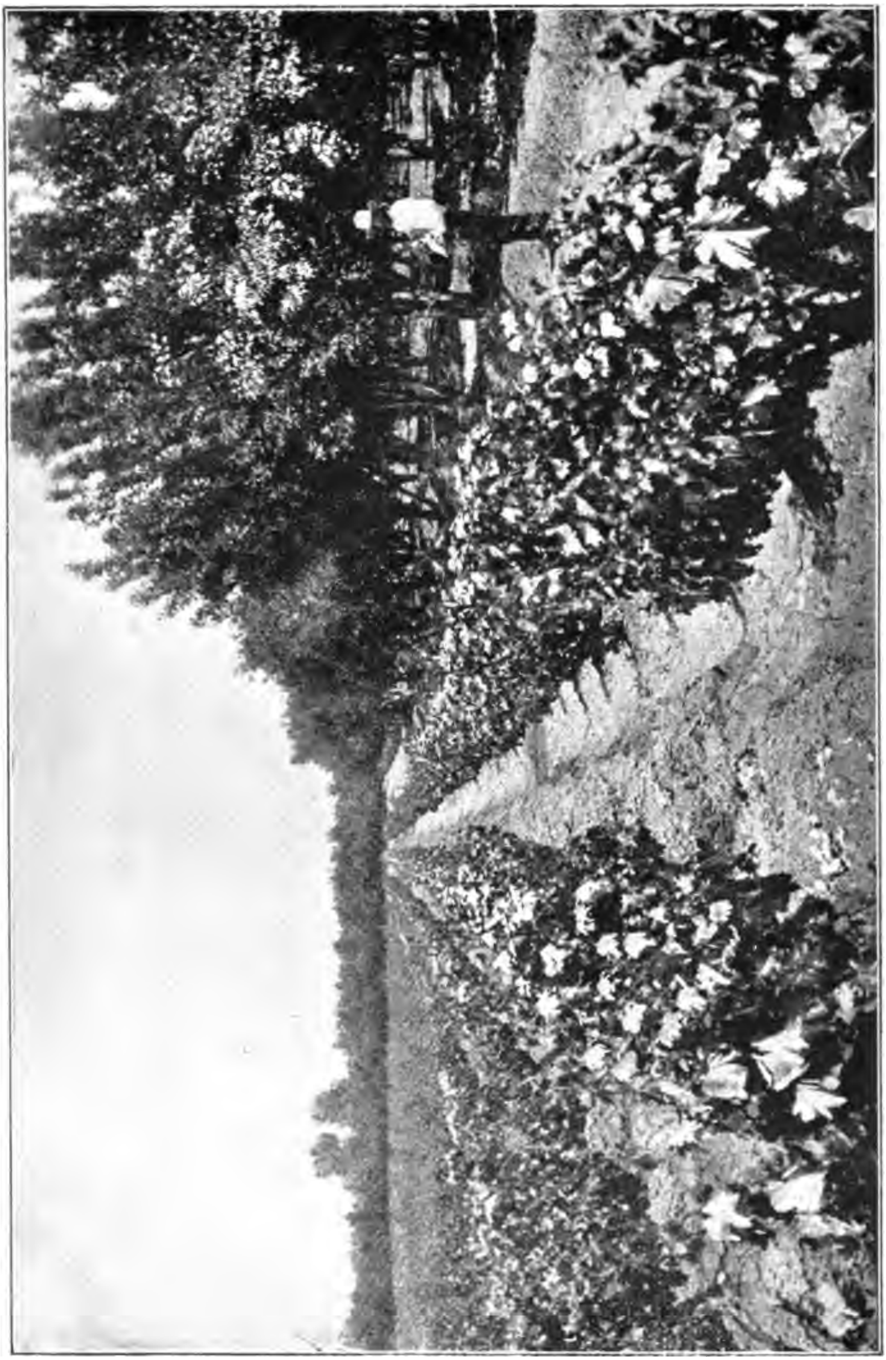
SEC. 19. It is hereby made the duty of the legislature at its first session to provide for the payment of all debts and indebtedness incurred and authorized to be incurred by the constitutional convention of New Mexico which shall remain unpaid by the Territory of New Mexico.

SEC. 20. This constitution shall be enrolled in duplicate, after which both copies thereof shall be signed by the president of this convention and the secretary thereof and such delegates as desire to sign the same, whereupon they shall be deposited in the office of the secretary of the Territory, where they may be signed at any time by any delegate who shall be prevented from signing the same for any reason at the time of the adjournment of this convention. On the first day of December, A. D. 1889, the secretary of the Territory shall forward one of said copies to the President of the United States, at Washington, and shall attach his certificate thereto under his seal of office certifying that the same is one of the duplicate enrolled copies of the constitution adopted by this convention; the other copy shall remain on file in his office until the secretary of state shall be qualified under this constitution, when the same shall be turned over to him and filed by him and safely deposited and recorded by him in the books of miscellaneous records.

SEC. 21. Until otherwise provided by law the number and jurisdiction of the district attorneys shall be as now provided by law.

Done in open convention at the city of Santa Fe, in the Territory of New Mexico, this 21st day of September, in the year of our Lord 1889.

J. FRANCISCO CHAVEZ, *President of Convention.*
I. M. BOND, *Secretary of Convention.*



VINEYARD IN LOWER RIO GRANDE VALLEY.

RAILROADS.

SANTA FE, N. MEX., *August 6, 1900.*

SIR: In reply to your letter of June 30, 1900, I beg leave to hand you a report on railroads in the Territory of New Mexico up to and including June 30, 1900. Trusting that you may find the same correct,

I have the honor to be, your obedient servant,

MAX FROST,
Secretary Bureau of Immigration.

His Excellency MIGUEL A. OTERO,
Governor of New Mexico.

Early in the spring of 1879 it was the fortune of the writer of these lines to pass through the Territorial empire of New Mexico from Trinidad, Colo., to Las Cruces and Silver City in the extreme southern and southwestern parts of the Territory, tediously traveling the entire distance of upward of 700 miles in old-fashioned stagecoaches at the rate of about 5 miles an hour. Less than two years later he passed over part of the same route, but the slow-going and toiling stagecoach had disappeared, and he rode into the very heart of the historic and resourceful region in a palace car, which left the Missouri River less than two days before and conveyed its passengers with as much comfort and far less fatigue than is experienced in making the journey from New York to Chicago. The wonderful rapidity with which steel rails had been extended into this sparsely settled country of magnificent distances was not more marvelous than the many striking manifestations on every hand of an astonishing awakening from the slumber of two centuries, attributable to the inspiring and stimulating influence of railway lines, bringing the long-neglected Territory in close touch with the enlightened progress and fruitful modern methods of the Eastern States.

In the early history of the utilization of steam for transportation purposes it was supposed that a country must be settled and developed before it could support a railway, and those who projected new lines followed the great routes which internal commerce had already established for itself and whose facilities it had outgrown. The pioneer railway builders sought to connect the large towns and to secure a traffic already important and likely to grow. Soon after the close of the civil war this theory was abandoned and the railway has since been the advance agent of civilization in the country. It has pushed out into countries that were almost destitute of population and which had not felt the stimulating influence of outside capital, following close upon the trails of Government exploring expeditions, whose reports of undeveloped natural resources and descriptions of scenic and climatic attractions have been among its most important guides.

The men who have invested in the construction of most of the railways of the West have not done so because they believed the traffic of the regions through which they were projected was sufficient at the time to support the enterprises, but because they were persuaded that the roads would rapidly create a profitable volume of business for themselves. These remarks may be applied with peculiar propriety to the several railway lines of New Mexico. They have not only quickened the entire Territory into new life, attracting desirable immigration from all parts of the country, and giving a fresh and healthful impulse to all the useful activities of the people, but have actually created a large part of the traffic that is already making them more than self-supporting, and insures them large and steadily increasing profits in the future, thus satisfactorily demonstrating the wisdom of their projectors and affording substantial encouragement for the early construction of the important new lines projected in the Territory. Not one of the ten railway lines in New Mexico is in the hands of a receiver, and, after passing through the various trying vicissitudes inevitably incident to the development of natural resources, all of them have reached a point where they annually show net earnings.

Justly sharing in the general and unexampled prosperity of the entire Territory, including particularly the mining, lumber, stock-growing, wool-raising, agricultural, and horticultural industries, the railways of this region have earned larger profits during the past year than during any twelve months since the first locomotive whistled in New Mexico, about twenty years ago. And the future is bright with promise of richer rewards to come. The development of the magnificent possibilities of the Territory has so far only been initiated. When its vast and only partly explored mineral belts, carrying untold values in gold, silver, copper, lead, zinc, iron, and precious stones, are systematically opened up and their riches rendered available; when its extensive coal measures, some of them still miles from railways, are worked to their full capacity and their product utilized in smelting and manufacturing plants; when its comparatively untouched forests of fine timber, such as are found in the Black Range and elsewhere, are placed within the reach of enterprise by means of adequate transportation facilities and are united with its building stones and brick-making materials, boundless in quantity, and unexcelled in quality, in structural work; when its immense and apparently inexhaustible deposits of salt, soda, alum, sulphur, gypsum, kaolin, and fire clay are accessible and brought into use; when the raising of blooded and graded cattle supplants the old range method, and an approximation of the Ohio plan is adopted in the production of sheep and wool; when all its arable lands are placed under the magic touch of water and rendered fruitful by means of a general system of storage reservoirs and irrigation canals, the railways of New Mexico will enter upon an era of prosperity equal to that enjoyed by those that gridiron the great Commonwealths of Pennsylvania, Ohio, Indiana, and Illinois. These manifest possibilities will all sooner or later be realized. The railways have already contributed immensely toward the development of the Territory. They will do more in the same direction each year.

At the present writing there are 1,704 miles of railway actually constructed within the boundaries of New Mexico, and but few sections of the Territory are without rail and telegraphic communication with all parts of the world. The lines of railway represented in this large mileage are owned and operated by 10 different corporations, some operating wholly within the Territory, but most of them coming under either the transcontinental or interstate classifications, and, named in the order of their importance, are as follows:

Atchison, Topeka and Santa Fe Railway Company, including Santa Fe-Pacific Railway Company.
Denver and Rio Grande Railroad Company.
Pecos Valley and Northeastern Railroad Company.
Southern Pacific Railway Company.
El Paso and Northeastern Railroad Company.
Colorado and Southern Railroad Company.
New Mexico and Arizona Railroad Company.
Arizona and New Mexico Railroad Company.
Alamogordo and Sacramento Mountain Railroad Company.
Tierra Amarilla Southern Railroad Company.

The Atchison, Topeka and Santa Fe is not only one of the pioneer railway systems of the West, but is the greatest of all the transcontinental lines, extending from Chicago to Los Angeles and San Francisco, and operating a total of 7,782 miles of railway in twelve States and Territories. It entered New Mexico early in 1880, in advance of all competitors, and now operates 849 miles of perfectly constructed track within the Territory. It crosses the northeastern border of New Mexico near the city of Raton and passes through the entire Territory, near the center, traversing the fertile valley of the Rio Grande, and passing out near the city of El Paso, Tex. Its northern line extends almost due west from Albuquerque, through the extensive coal fields and grazing lands of western New Mexico, to Los Angeles and San Francisco on the Pacific, while branches of its southern line extend from Rincon to Deming, Silver City, and Santa Rita, tapping the famous gold, silver, copper, lead, and iron mining districts of Grant County, and connecting with lines for southern and lower California. It also operates branch lines to the Blossburg coal mines in Colfax County, to the pleasure and health resort at Las Vegas Hot Springs, to the Cerrillos or Madrid coal mines in Santa Fe County, to the great lead and carbonate mines at Magdalena in Socorro County, and to the celebrated silver mines at Lake Valley in southern Sierra County. The three largest cities of the Territory—Las Vegas, Santa Fe, and Albuquerque—and also the flourishing cities and villages of Raton, Springer, Mora, Wagonmound, Los Lunas, Socorro, San Marcial, Las Cruces, Deming, and Silver City, are situated on the main line and numerous branches of this system.

The Denver and Rio Grande Railroad enters the Territory south of Antonito, Colo., and passes in a southerly direction through the counties of Taos, Rio Arriba, and Santa Fe to the capital city of Santa Fe, a distance of 114 miles, rendering accessible some of the finest agricultural, grazing, and mineral lands in the Territory. Fifty-two miles of its tracks between Antonito and Durango, Colo., passes through the valuable coal and timber belts of northern Rio Arriba County, N. Mex., increasing its total trackage in the Territory to 166 miles. The city of Santa Fe and the towns of Espanola, Embudo, Tres Piedras, Chama, and Lumberton are upon this road.

The Pecos Valley and Northeastern Railroad Company is at present operating 192 miles of well-equipped railway within the Territory. The line of this company passes through the heart of the beautiful and fruitful Pecos Valley from the Texas line on the south, through Eddy and Chaves counties, to Roswell on the north, and thence in a northeasterly direction to Amarilla, Tex., where it connects with trunk lines for the east and southeast. Its southern terminus is Pecos, where it connects with the Texas railway system. It passes through the towns of Carlsbad, Hagerman, and Roswell in the Pecos Valley, besides numerous towns on the recently constructed extension to Amarilla. This line is the main outlet for the large cattle, sheep, and wool traffic of southeastern New Mexico, and also affords markets for the surplus products of the peerless farms, orchards, and gardens of the Pecos Valley.

The El Paso and Northeastern Railway extends from El Paso and Fort Bliss, in Texas, through Jarilla, Alamogordo, La Luz, Tularosa, and Three Rivers, in Otero County, New Mexico, to its present terminus at El Capitan, in the Salado coal fields of Lincoln County. The trackage of this new road within the Territory is at present 154 miles and construction work is still in progress. It passes through some of the best mining, timber, stock-raising, and farming lands of the Territory. Sufficient development work has already been done to establish the fact that the gold, copper, iron, and turquoise mines of the Jarilla district are exceedingly valuable. The 8 opened coal mines in the Capitan district are already outputting from 300 to 500 tons of superior coal per day.

The Southern Pacific Railroad Company has about 166 miles of its tracks within the Territory. It enters the Territory from the east, about 4 miles northwest of the city of El Paso, passes through a broad plain mainly devoted to the stock industry, and crosses the Arizona line near San Simon. The towns of Deming, Lordsburg, and Shakespeare are situated upon this road.

The Colorado and Southern Railway, formerly the Denver and Gulf, crosses the extreme northeastern corner of New Mexico and 76 miles of its tracks are within the Territory. This road passes through Clayton and Folsom, the principal towns of Union County, and enters the State of Texas at Texline, forming an important trunk line from Denver through central Texas to the Gulf of Mexico. Stock raising is the most important industry in the section of New Mexico traversed by this line.

In the southwestern part of the Territory the New Mexico and Arizona Railway Company, whose line runs from Deming, N. Mex., to Benson, Ariz., a distance of 176 miles, has 25 miles of its own track within this Territory. This road uses the track of the Southern Pacific from Deming to Lordsburg. The Arizona and New Mexico Railway Company, whose road extends from Lordsburg to Clifton, Ariz., operates 30 miles of its track within New Mexico. The principal traffic of both these roads is the transportation of ores.

The Alamogordo and Sacramento Mountain Railway, which was last year completed from Alamogordo to Toboggan and Cloudcroft, a distance of 20 miles, and the narrow-gauge timber railway up the various canyons of the Sacramento Mountains, about 9 miles in length, are practical extensions of the El Paso and Northeastern system. Both roads are used mainly for the transportation of timber to the mills in Alamogordo. Cloudcroft is situated upon the summit of the Sacramento Mountains and is a popular summer resort. The Alamogordo and Sacramento Railway shows some of the most intricate work in broad-gauge railway building to be found in the world. Maximum grades of 5.2 per cent and 30-degree curves are features of the road.

The Tierra Amarilla Southern is a private railway, owned by the Burns & Biggs Lumber Company, operating large sawmills on the Tierra Amarilla grant. It runs from the town of Chama, Rio Arriba County, to the town of Brazos, in the same county, a distance of 17 miles.

The following is a recapitulation of the railways now constructed in New Mexico, together with the mileage of each within the Territory:

	Miles.
Atchison, Topeka and Santa Fe Railway	849
Denver and Rio Grande Railroad	166
Pecos Valley and Northeastern Railway	192
Southern Pacific Railway	166
El Paso and Northeastern Railway	154
Colorado and Southern Railway	76
New Mexico and Arizona Railway	25
Arizona and New Mexico Railway	30
Alamogordo and Sacramento Mountain Railway	29
Tierra Amarilla Southern Railway	17
Total mileage in New Mexico	1,704

During the year 1899, 301 miles of new railway were constructed within the Territory, the new mileage being included in the foregoing total. This work was done by the following companies:

	Miles.
El Paso and Northeastern	154
Pecos Valley and Northeastern	100
Alamogordo and Sacramento Mountain	29
Atchison, Topeka and Santa Fe	18
Total new mileage last year	301

No new railway construction work has been done in the Territory so far this year, but several important new lines are projected, and it seems probable that most of them will be built at an early day. Among the most needed and promising of these projected lines is the contemplated Black Range Railway from Magdalena on the Santa Fe system to Chloride, in northern Sierra County, a distance of less than 90 miles, and thence southwesterly down the Gila River to a point at or near Clifton, Ariz., about 100 miles, tapping the immense wealth of minerals and timber in the Black Range and the fine and extensive tributary stock ranges. Preliminary surveys show that this proposed line is exceptionally feasible from a construction standpoint, the grades being comparatively easy and no costly work being involved in the undertaking, and careful and conservative estimates place the immediate daily tonnage of the Magdalena-Chloride line alone in round numbers as follows: Ore, 25 cars; live stock, 4⅔ cars; merchandise, ties, lumber, etc., 4⅓ cars; total, 34 cars. Judging from the fact that the annual tonnage in and out of Silver City is not less than 20 cars per day, it is believed that the tonnage of Chloride alone would nearly equal the foregoing estimate. The cost of constructing and equipping the Magdalena-Chloride line is estimated at $1,418,627.50, and the annual earnings at $405,255.

Another important and seriously contemplated stretch of new railway construction in the Territory is the projected extension of the Chicago, Rock Island and Pacific system from Liberal, Kans., west and southwest, through Union, Guadalupe, and Lincoln counties to El Capitan, N. Mex., there connecting with the El Paso and Northeastern Railway, and thus forming a continuous trunk line from Chicago through New Mexico to El Paso, Tex. Both the Rock Island and the El Paso and Northeastern companies have corps of engineers in the field making preliminary surveys for the proposed new line.

It is also understood that it has been decided in the near future to extend the Pecos Valley and Northeastern or Hagerman system from Roswell south and southwest through Chaves County, thence circling westward through the Penasco region and between the Sacramento and Guadalupe mountains, and passing on in a southwesterly direction to El Paso, a distance of probably 140 miles, affording the eastern and southern sections of the Territory another direct eastern and southern outlet. The developed and undeveloped mining, timber, stock-growing, wool, agricultural, and fruit industries of the tributary regions would unquestionably afford this line a large volume of profitable local traffic, which could be depended upon to increase each year.

There are substantial reasons for believing that the Denver and Rio Grande Railroad Company has determined soon to begin the construction of a line south into New Mexico from its southwestern terminus at Durango, Colo., running down the Rio Las Animas through San Juan County, N. Mex., to the junction of the Animas and San Juan rivers, at Farmington, thence following the San Juan River in a northerly and westerly direction, crossing the southwest corner of Montezuma County, Colo., extending almost due west along the San Juan River into San Juan County, Utah, to Bluff City, and thence westerly, probably to the Pacific, with spurs and branches as needed. Confidence that this important work will soon be undertaken in earnest is founded upon the fact that a Rio Grande subcorporation, capitalized at $2,000,000, was recently incorporated at Denver for the purpose of constructing six branch lines, eventually to be operated as parts of the Denver and Rio Grande system, and the line south from Durango was distinctly indicated as one of the number. It also seems probable that a branch will be extended south through Bernalillo County to Gallup and Albuquerque. The road from Durango to Farmington would pass through the wonderful fruit belt of San Juan County, N. Mex., and would render available some of the best coal lands in the Territory. It is urgently needed and would prove profitable.

The Cochiti and Northwestern Railway Company has been incorporated for the purpose of building a line of railway from Thornton Station, on the Santa Fe system, through the phenomenal Cochiti gold-mining district, to Bland, and thence westward to the Jemez Hot Springs, in Bernalillo County. It is asserted that the bonds for the construction of this important road have been sold and that construction work will soon be commenced. No doubt is entertained that this line would more than pay expenses from the very first day it was operated.

A company has been formed for the construction of a railway from the city of Las Vegas through the Mora Valley to the town of Taos, a distance of 100 miles. The line has been surveyed and some preliminary work has been done on the road. Its construction would open up a most fertile part of the Territory, as well as large mining and timber industries.

A new railroad is also projected from Albany, Tex., through the city of Las Vegas and on to the northwest, but of its construction little can be said at this time, as the project has not taken definite shape, so far as I am advised.

Considering the proposed extensions referred to above, the following data will be interesting: The extension of the Chicago, Rock Island and Pacific from Liberal, Kans., to Carrizoza Station, on the El Paso and Northeastern Railway, will be about 370 miles in length. This will give the following distances from Chicago via that route to Los Angeles and from Chicago to the City of Mexico:

	Miles.
Chicago, Rock Island and Pacific Railway: Chicago to Liberal, Kans	930
To build: Liberal to Carrizoza, N. Mex	370
El Paso and Northeastern Railway:	
Carrizoza to El Paso	144
Chicago to El Paso	1,444
Southern Pacific Railroad:	
El Paso to Los Angeles	812
Chicago to Los Angeles	2,256
Mexican Central:	
El Paso to Mexico City	1,224
Chicago to Mexico City	2,668

The proposed extension of the Pecos Valley and Northeastern from Hagerman to El Paso would be about 180 miles. This would make the distances, via the Atchison, Topeka and Santa Fe, the Pecos Valley and Northeastern, and the proposed extension to El Paso, as follows:

	Miles.
Atchison, Topeka and Santa Fe: Chicago to Amarillo	1,043
Pecos Valley and Northeastern: Amarillo to Hagerman	229
To build: Hagerman to El Paso, about	180
Chicago to El Paso	1,452

It will thus be seen that this would give the Santa Fe a route to Mexico of the same length as the Rock Island after the latter shall have completed its Liberal extension and a route of 175 miles shorter than its present route by way of the Raton tunnel. Should the Santa Fe complete the route from central New Mexico to a connection with the Hagerman system at Roswell, it would have then another transcontinental connection with San Francisco, Cal., by way of its lines to Amarillo, Tex., the Hagerman system to Roswell, its own line from Roswell to its main line through New Mexico (this new connection would be about 200 miles), via the Santa Fe and Pacific into California. It is but a question of a short time that this last extension across New Mexico will be a fact.

Elevations on line of Atchison, Topeka and Santa Fe Railway in New Mexico.

Station name.	Elevation.	Station name.	Elevation.
	Feet.		*Feet.*
North Portal Tunnel	7,548.00	Levy	6,223.00
Lynn	7,525.00	Bond	6,203.00
Raton	6,597.00	Shoemaker	6,229.00
Otero	6,357.00	Kroenig	6,549.00
Dorsey	6,042.00	Azul	6,650.00
Maxwell City	5,864.00	Las Vegas	6,358.50
Toril	5,884.00	Blackwell	6,257.00
Rayado	5,947.00	Chapelle	6,043.00
Nolan	6,042.00	Ribera	5,996.50
Wagonmound	6,153.00	Fulton	6,502.00
Tipton	6,340.00	Rowe	6,781.00
Watrous	6,370.00	Fox	7,126.00
Onava	6,705.00	Canoncito	6,833.00
Arriba	6,451.00	Twichell	6,311.00
Romero	6,262.50	Ortiz	5,796.00
Sulsbacher	5,955.00	Waldo	5,591.00
Blanchard	6,357.00	Thornton	5,224.00
Sands	6,266.00	Elota	5,098.80
Gise	6,763.00	Bernalillo	5,009.00
Pecos	7,028.64	Albuquerque	4,910.00
Glorieta	7,415.00	Barr	4,869.00
Lamy	6,447.00	Los Lunas	4,809.00
Galisteo	6,000.00	Sabinal	4,720.00
Los Cerrillos	5,647.65	Alimillo	4,613.00
Rosario	5,383.00	Socorro	5,550.00
South Portal Tunnel	7,584.00	Arny	4,466.00
Hillside	7,028.00	Pope	4,530.00
Dillon	6,435.00	Crocker	4,688.50
Hebron	6,136.00	Cudder	4,664.00
Schomburg	5,951.00	Upham	4,516.38
Dover	5,796.00	Rincon	4,021.00
Springer	5,745.00	Tonuco	4,220.00
Colmor	5,901.00	Leasburg	3,918.00
Las Cruces	3,850.00	San Marcial	4,418.00
Mesquite	3,795.00	Lava	4,685.00
Berino	3,762.00	Engle	4,728.00
Deming	4,477.70	Aleman	4,622.00
Magdalena	6,609.00	Grama	4,306.00
Santa Rita	6,460.00	Detroit	4,016.40
Lake Valley	5,115.00	Selden	3,927.00
Blossburg	6,760.00	Dona Ana	3,879.00
Algodones	5,065.00	Mesilla Park	3,837.00
Alameda	4,957.00	Earlham	3,781.00
Abajo	4,898.00	Anthony	3,753.12
Isleta	4,856.00	Silver City	6,000.00
Belen	4,762.00	Whitewater	5,295.00
Lajoya	4,666.00	Nutt	4,759.00
Lemitar	4,584.00	Santa Fe	6,919.00
San Antonio	4,500.00	Las Vegas Hotsprings	6,611.00

REPORT OF THE COMMISSIONER OF PUBLIC LANDS.

SANTA FE, *July 24, 1900.*

SIR: In accordance with your request, I have the honor to submit herewith the transactions of this office from the date of its creation to the present time, covering a period of fifteen months.

The board held its first meeting on March 27, 1899, and entered upon its work of administering the laws, as prescribed by the legislative act approved March 16, 1899. I immediately instituted correspondence with both State and Territorial officials of the several land offices, with the object in view of formulating, from their years of experience, the best methods and system of keeping the records. I was instructed by the board to visit the Territorial board of public lands of Oklahoma as the result of an invitation extended by the officials of that Territory, but this was finally deemed unnecessary, as I had already obtained through their kind assistance much valuable information. However, it was finally deemed best for me to visit the Colorado State land office before the final adoption of a system of records, and I was accordingly authorized to visit that office. These officials extended me much valuable assistance, and the knowledge thus obtained has been invaluable to this board.

A blank form of lease was adopted and submitted to the Interior Department for its approval, and much time was lost by the Department in approving the same. In the meantime many applications were being received by letter. A form of application was adopted, and was mailed to these applicants, as it was decided that no application would be entertained unless made out on this regular form prescribed by the board. It soon became evident, by the number of applicants for the same section, that to solve the question as to whom the award of lease should be made in such cases, the lease should be issued to the highest bidder, and the applicants were so advised. In October I mailed blank leases to the successful applicants, and on their return to me, properly executed, I at once forwarded the same to the Secretary of the Interior at Washington for his approval. The first shipment of leases, made on October 20, 1899, was not approved until December 28, and reached this office in the following January. Upon the return of these approved leases, the cash receipts represented by them were deposited at once with the Territorial treasurer.

There are now on file in the Department at Washington, awaiting the approval of the Secretary of the Interior, 206 leases, these leases representing a rental of $5,458.44 and an acreage of 131,760. Numerous complaints have been received at this office from these applicants on account of their failure to receive their duplicate leases. There is much foundation for these complaints, due to the fact that many of these leases were executed and forwarded to the Department at least eight months ago, and their second year's annual payment, represented by their first deferred payment note, will become due and payable before they will have received their duplicate leases. Had these leases been approved, as we had hoped, there would have been $12,098.11 available for apportionment to the common schools of the Territory by the superintendent of public instruction instead of $6,639.67. This result will compare very favorably with the first year's revenue derived from the leasing of school sections 16 and 36 in adjacent States and Territories, as shown by their statistics.

THE UNITED STATES COMMISSION.

This commission, consisting of the governor, the surveyor-general, and the solicitor-general of the Territory, acting under the direction of the Secretary of the Interior, was created to make selections of the lands granted to the Territory under the act of Congress approved June 21, 1898. Mr. D. M. White, the locating agent for the above commission, has notified this office that on September 21, 1899, November 6, 1899, and December 2, 1899, this commission made selections aggregating 220,679.23 acres, which were forwarded to Washington for the approval of the Secretary of the Interior. (See detailed list on following pages.) In the early part of June, 1900, we received, under the seal of the United States General Land Office, a certificate of the approval of selections to the amount of 16,741.97 acres for the establishment and maintenance of the Institution for the Blind. These are the only selections thus far reported to this office as approved. I regret very much the delay that has attended the approval of these selections made on behalf of the Territory. If they had been promptly approved after the expiration of the ninety days, which is the minimum time required by Department regulations to elapse between the date of filing and that of approval, these lands now would have been producing a revenue for the Territorial educational institutions; and it seems unfortunate that such delay should have been deemed necessary by the Department.

ADVANCE PAYMENT FOR THE PURCHASE OF LANDS.

The Alomogordo Lumber Company notified the board that they desired lands selected in the Sacramento Mountains, with the idea of ultimately purchasing the same, and offered to pay the United States land office fees for such selections as well as advance sufficient money from time to time to enable the Territory to select other lands; also, provide sufficient funds to conduct the work of this office, such payments to be considered as a part payment on final purchase of lands. Mr. Burkdoll and his associates made a similar proposition and it was accepted. This fund enabled the Territory to proceed in the selection of lands and the maintenance of its office. As a result the Territory has been able to select over 220,000 acres, as well as meet the necessary expense in leasing school sections 16 and 36, the receipts from which aggregated $12,098.11. Without this available fund from advance payments on contemplated sales, the Territory could not have leased or selected any lands until the receipt of the funds from the Territorial treasurer, derived from the Territorial tax levied to reimburse the board of public land fees, and which was levied in the year 1899, but which was not received until July, 1900. But even this fund thus created by taxation would not have been sufficient to pay the United States land office fees and our office expense—not including clerical assistance. The Territory is to be congratulated upon the fact that the means were provided at once for the successful and immediate carrying out of the work of this office, for which the legislature failed to provide.

FOREST RESERVATIONS.

After an interval of over fifty years as a Territory, a grant of about 5,000,000 acres, of which about 2,000,000 acres are to be selected, the balance being represented by school sections 16 and 36, was made to New Mexico by the Congressional act approved June 21, 1898. The selections thus far made on behalf of the Territory amount to about 220,000 acres. It is to be deplored that the Department at Washington, through its agents in the field, is reserving so much of our best lands before we can possibly select even a fractional part of our grant. The Gila Forest Reserve was created out of the best lands in the southwestern part of New Mexico, soon after the passage of the act of Congress granting lands to the Territory, and even before the organization of the United States commission to select lands on its behalf. This portion of the Territory, now known as the "Gila Forest Reserve," was particularly desirable for stock, as evidenced by the number of applications received for the leasing of school sections within said reservation. These reservations, as well as those reported to be contemplated, will deprive the Territory of a large part of its best lands (particularly before it becomes a State), thus defeating the object of the grant. When one considers the area in the Territory covered by grants to individuals, as well as by Government reservations, both those already made and those contemplated, there will be very little desirable land left to select for the Territorial educational institutions.

THE PALACE BUILDING.

Under act of Congress approved June 21, 1898, the building known as "The Palace," in the city of Santa Fe, together with all lands and appurtenances connected therewith, was granted to the Territory of New Mexico.

The west end of the building and adjoining rooms is occupied by the United States Government for its post-office, at a rental of $50 per month, from July 7, 1899, as per agreement entered into with Mr. Doran, post-office inspector, who was present at our regular meeting September 4, 1899. So far no portion of this rental has been paid, although the Acting First Assistant Postmaster-General, under date of November 1, 1899, stated, "I have the matter now under consideration." I have written the Department several times, but thus far with no satisfactory results. The central portion is occupied by the honorable secretary of the Territory as a residence. The eastern end is occupied by the historical society without charge for rent. That portion formerly occupied by the governor and secretary as offices is rented to Messrs. Newberry and Laughlin at a rental of $37.50 and $39, respectively, in advance, per quarter. The alfalfa grown on the land in the rear of the building during the season of 1899 and 1900 has been sold for $20.

It is to be hoped that the Government will deem it best to assume control of this historical building, the history of which is a national one, and in the maintenance of which one and all are alike interested, on account of its important historical traditions. Under the supervision of the Smithsonian Institution, as a western annex, it would receive the protection which is its due, and they alone are the proper custodians.

APPRAISAL OF LANDS.

Under date of June 28, 1900, the honorable Commissioner of the General Land Office forwarded to me an opinion of the honorable Assistant Attorney-General, rendered June 5, 1900, stating that the appraisal of lands to be leased is a necessary prerequisite to such leasing, which opinion was approved by the honorable Secretary of the Interior. The honorable Commissioner of the General Land Office at the same time notified me that all leases not heretofore approved are suspended until evidence is submitted in each case that the land has been appraised, and that all leases hereafter submitted must be accompanied by an affirmative showing that the lands leased have been so appraised. The framers of the act of the legislature state that it was their intention to leave the matter of appraisal to the discretion of the board, and it is to be regretted that the wording of the statute should have been subject to a different construction. The conditions in New Mexico are such that the question of the presence of water on a section alone fixes the value and rate of rental. Improvements determine the question of preference right and not the valuation of a section as to rate of rental. In the majority of instances improvements do not exist until the lessee has occupied the section, and even then they may not occur, as these school sections are strictly grazing lands and their value, as I have already stated, is determined by the existence or nonexistence of water thereon. The law is fully administered and the school fund thoroughly protected by the application blank furnished the applicant, who states therein under oath as to whether there is water of any description on the section for which he applies. When one considers the great distances to be covered by an appraiser to reach even the most accessible points away from the railroad, to which he would have to proceed by wagon, at a cost of $5 per day for conveyance only, it will readily be seen that the traveling expenses of the appraiser alone would more than exceed the revenue derived from the five years' rental. The majority of our leases thus far issued, approved or unapproved, are for sections located in Union County. By referring to the Government post-route map, it will be seen that an appraiser leaving Clayton to reach Gallegos would travel 83 miles; from Las Vegas to Endee, 162 miles; also from Las Vegas to Fort Sumner, 130 miles; from Roswell to Lincoln, 108 miles. These illustrations are from the nearest railroad points to the post-office address of lessees, and must be traversed by wagons. The facts ascertained by examination necessary to appraisal would not fix the rental value of the lands at a higher rental than without such examination, as all the facts necessary to fixing the rental of sections are ascertained from our application blanks. The present annual rental is $12.80 for a section without water and $32 for sections with water of any description thereon. When a higher rental exists, it is brought about by there having been more than one applicant for the same section, in which cases by bidding the rental has reached a much higher figure. I regret very much that this matter of appraisement was not determined upon on the receipt of the leases for approval in October last, rather than after an interval of ten months. Two hundred and fifty-nine leases have been approved without the requirement of appraisal, while 206 leases unapproved have been on file in Washington awaiting approval since January last. I would, therefore, respectfully recommend that the Department's ruling of June 28, 1900, be so modified that all unapproved leases, including those bearing date of July 2, 1900, be at once approved by the honorable the Secretary of the Interior.

Total grant of lands to the Territory of New Mexico by act of Congress, June 21, 1898.

["This act is intended only as a partial grant of lands" by the United States.]

		Acreage.
Common schools, sections 16 and 36 in every township for the support of common schools, 5,355 sections, not including those within land grants and reservations		3,427,200
Public buildings "at the capital of the State of New Mexico, for legislative, executive, and judicial purposes, when permanently located," 50 sections		32,000
University, 2 townships in quantity (together with all saline lands within the Territory):		
Act July 22, 1854	46,080	
Act June 21, 1898	65,000	
		111,080
Agricultural College		100,000
Water reservoirs for irrigation purposes		500,000
Improvement of the Rio Grande in New Mexico		100,000
Insane asylum		50,000
School of mines		50,000
Deaf and dumb asylum		50,000
Reform school		50,000
Normal schools		100,000
Institute for the blind		50,000
Miners' hospital		50,000
Military institute		50,000
Penitentiary		50,000
The building known as "the Palace," in the city of Santa Fe, and all lands and appurtenances connected therewith		2.60
Total		4,770,282.60

Selections of land made by the United States Commission under the act of Congress of June 21, 1898.

[Selections approved by the honorable Secretary of the Interior May 16, 1900.]

	Acreage.
List No. 1, institution for the blind:	
Grant County	5,001.98
Otero County	11,739.99
Total	16,741.97

Selections on file in the Department of the Interior not yet approved.

	Grant.	Santa Fe.	Socorro.	Otero.	Acreage.
Agricultural college	6,893.62				6,893.62
University			1,058.41		1,058.41
Water reservoirs for irrigating purposes	49,645.06				49,645.06
Insane asylum	4,737.89	908.56		11,254.20	16,900.65
Miners' hospital	5,001.04			11,355.11	16,356.15
Reform school	5,000.80			11,469.93	16,470.73
Penitentiary	5,009.46			10,250.88	15,260.34
School of mines	4,760.00			11,503.72	16,263.72
Normal schools	9,999.90			22,617.61	32,617.51
Military institute	5,000.00			11,473.63	16,473.63
Deaf and dumb asylum	5,000.00			10,997.44	15,997.44
Total	101,047.77	908.56	1,058.41	100,922.52	203,937.26

Aggregate selections approved	16,741.97
Aggregate selections unapproved	203,937.26
Total	220,679.23

Leases of common-school lands approved by the Secretary of the Interior.

County.	Leases.	Acres.	Amount of rental.
Bernalillo	5	3,200	$81.20
Chaves	39	24,960	1,305.80
Colfax	32	20,320	1,041.70
Donna Ana	5	3,200	152.60
Eddy	15	9,600	236.80
Grant	5	3,200	152.60
Guadalupe	7	4,480	128.00
Lincoln	6	3,840	115.20
Mora	15	9,440	460.80
Otero	3	1,920	128.00
Rio Arriba	1	640	12.80
Santa Fe	2	1,280	128.00
San Miguel	11	7,040	192.80
San Juan	2	1,280	50.60
Sierra	8	5,120	125.47
Socorro	5	3,200	140.80
Taos			
Union	95	60,640	2,232.10
Valencia	3	1,920	70.40
Total	259	165,280	6,755.67

Amount deposited with the Territorial treasurer, as per his receipts numbered 2 to 7, inclusive, on file in this office	$6,755.67

Itemized as follows:

Receipt No.	When deposited.	Amount.
2	February 1, 1900	$4,010.00
3	March 5, 1900	44.80
4	March 6, 1900	2,447.27
5	March 29, 1900	124.80
6	May 2, 1900	12.80
7	June 30, 1900	116.00
		6,755.67

Leases of common-school lands unapproved on file in the Department of the Interior at Washington, D. C.

County.	Leases.	Acreage.	Amount of rental.
Bernalillo	3	1,920	$96.00
Chaves	20	12,800	352.00
Colfax	27	17,280	999.60
Donna Ana	4	2,560	95.43
Eddy	2	1,280	25.60
Grant	16	10,240	1,289.20
Guadalupe	11	7,040	161.10
Lincoln	7	4,480	145.20
Mora	11	7,040	163.00
Otero	2	1,280	44.80
Rio Arriba	....	....	....
Santa Fe	....	....	....
San Miguel	15	9,600	455.50
San Juan	2	1,280	50.11
Sierra	4	2,560	89.60
Socorro	13	8,320	277.60
Taos	....	....	....
Union	66	42,160	1,156.10
Valencia	3	1,920	57.60
Total	206	131,760	5,458.44

Approved applications, leases, and notes not yet signed by applicant.

County.	Leases.	Acreage.	Amount of rental.
Bernalillo	1	640	$6.45
Chaves	4	2,560	51.20
Colfax	2	1,280	25.60
Eddy	5	3,200	57.55
Grant	5	3,200	350.80
Guadalupe	3	1,920	57.60
Lincoln	2	1,280	100.25
San Miguel	1	640	6.40
Union	4	2,480	51.20
Total	27	17,200	707.05

Applications unapproved or withdrawn.

County.	Applications.	Acreage.	Amount.
Chaves	11	7,040	$221.80
Colfax	15	9,600	314.30
Donna Ana	3	1,920	44.80
Eddy	9	5,760	158.40
Grant	1	640	12.80
Lincoln	3	1,920	57.85
Mora	1	640	71.40
Otero	2	1,280	14.40
Santa Fe	1	640	160.00
San Miguel	2	1,280	66.65
San Juan	1	640	12.80
Socorro	4	2,560	425.60
Taos	1	640	12.80
Union	31	19,840	587.40
Valencia	1	640	12.80
Total	86	55,040	2,173.80

Leases canceled, relinquished, or withdrawn.

County.	Leases.	Acreage.	Amount.
Chaves	3	1,920	$38.40
Colfax	4	2,560	71.20
Eddy	2	1,280	25.60
Mora	5	3,200	142.95
Otero	1	640	25.60
San Miguel	6	3,840	76.30
Sierra	3	1,920	38.40
Union	1	640	6.40
Total	25	16,000	424.85

The historical building known as The Palace in the city of Santa Fe, and lands connected therewith.

RECEIPTS.

A. A. Newberry, three months' rent in advance from July 1, 1900, for office vacated by the governor	$37.50
N. B. Laughlin, three months' rent in advance from July 1, 1900, for office vacated by the secretary	39.00
Hank Fisher, alfalfa crop, grown in 1899	10.00
Antonio Alarid, alfalfa crop grown in 1900, part payment	4.50
Total	91.00

Five per cent of the proceeds of the sale of public lands within the Territory by the United States.

[To be used as a permanent fund, the interest of which only shall be expended for the support of the common schools within the Territory, section 4, act of Congress approved June 21, 1898 (Stat., 484).]

Jan. 23, 1900.	Received from the United States	$894.38
Jan. 23, 1900.	Amount deposited with the Territorial treasurer, as per his receipt No. 1 on file in this office	894.38

Advance payments for the sale of lands.

Sept. 18, 1889.	Alamogordo Lumber Company	$1,749.25
Nov. 27, 1899.	A. R. Burkdoll	1,250.00
Mar. 5, 1900.	Alamogordo Lumber Company	3,491.25
	Total	6,490.50

DISBURSEMENTS.

United States land office fees account Territorial selections.

[As evidenced by receipted vouchers on file.]

Institutions.	Acreage.	Amount fees.
Water reservoirs for irrigation purposes	49,645.06	$622
University	1,058.41	14
Agricultural college	6,893.62	....
Institution for the blind	16,741.97	212
Normal schools	32,617.51	412
Reform school	16,470.73	210
Military institute	16,473.63	208
Insane asylum	16,900.65	216
School of mines	16,263.72	206
Deaf and dumb asylum	15,997.44	204
Miners' hospital	16,356.15	208
Penitentiary	15,260.34	194
Total	220,679.23	2,706

Commissioner's office expenses for fifteen months ending June 30, 1900.

[As evidenced by receipted vouchers on file showing itemized expenditures.]

Books, stationery, typewriter, laws and regulations and printed circulars of instructions to applicants	$763.05
Express charges, telegrams, lock and keys	11.56
Government stamped envelopes, postage, and post-office box rent	187.47
Commissioner's salary for fifteen months	2,500.00
Expense attending the commissioner's authorized trip to State land office, Colorado	73.55
Clerical assistance	467.00
Total	4,002.63

Recapitulation.

RECEIPTS.

Leases of common-school lands approved by the Secretary of the Interior		$6,755.67
Leases on file in Department of Interior awaiting approval		5,458.44
Approved applications, leases, and notes not signed by applicants		707.05
Applications withdrawn	$2,173.80	
Leases withdrawn	424.85	
		2,598.65
Rentals of Palace Building		91.00
Five per cent proceeds sales public lands within the Territory by the United States		894.38
Advance payment for the sale of lands		6,490.50
University, account United States land office fees		334.00
Territorial tax levy fifty-first fiscal year account reimbursing board of public lands, for United States land office fees		3,835.31
Total		27,165.00

DISBURSEMENTS.

United States land office fees account selections	2,706.00
Territorial treasury	7,650.05
Commissioner's office expense	4,002.63
Refund account withdrawal of applications and leases	2,598.65
Cash on hand in First National Bank at Santa Fe	10,207.67
Total	27,165.00

Apportionment of common school income fund, by Hon. M. C. de Baca, superintendent of public instruction, according to the pro rata enumeration of school children in each county last returned by the county superintendent.

County.	Children of school age.	Apportionment.
Bernalillo	7,604	$958.86
Chaves	971	127.44
Colfax	2,808	354.09
Dona Ana	3,943	497.21
Eddy	939	118.41
Grant	3,109	392.04
Guadalupe	1,538	193.94
Lincoln	1,316	165.95
Mora	3,270	412.35
Otero	1,070	134.93
Rio Arriba	3,024	381.33
San Juan	907	114.37
San Miguel	7,336	925.07
Santa Fe	4,193	528.74
Sierra	1,113	140.35
Socorro	4,047	510.33
Taos	3,320	418.65
Union	1,468	185.11
Valencia	676	85.50
Total	52,652	6,639.67

Respectfully submitted.

ALPHEUS A. KEEN,
Commissioner of Public Lands.

Governor M. A. OTERO.

EDUCATION.

Territory of New Mexico,
Office of Superintendent of Public Instruction,
Santa Fe, December 31, 1899.

Sir: In compliance with the provisions of law, I have the honor of submitting herewith to you my annual report as superintendent of public instruction of New Mexico for the year 1899.

Very respectfully,

M. C. de Baca,
Superintendent of Public Instruction.

Hon. Miguel A. Otero,
Governor of New Mexico.

New Mexico Territorial board of education.—Governor Miguel A. Otero, president, Santa Fe; Manuel C. de Baca, superintendent of public instruction, secretary, Santa Fe; C. L. Herrick, Albuquerque; F. W. Sanders, Las Cruces; Peter J. Schneider, Santa Fe.

County school superintendents.—Bernalillo: Frank A. Hubbell, Albuquerque. Chaves: E. O. Creighton, Roswell. Colfax: W. A. Chapman, Raton. Doña Ana: Jose Gonzales, Las Cruces. Eddy: A. U. Pratt, Carlsbad. Grant: B. T. Link, Silver City. Guadalupe: Desiderio Gallegos, Anton Chico. Lincoln: W. M. Clute, Lincoln. Mora: Saul Padilla, Wagon Mound. Otero: T. A. Biedleman, Alamogordo. Rio Arriba: Emilio Gonzales, Abiquiu. San Juan: A. Rosenthal, Farmington. San Miguel: Jose D. Martinez, Las Vegas. Santa Fe: F. F. Pino, Galisteo. Sierra: Frank L. Given, Hillsboro. Socorro: Anastacio Torres, Socorro. Taos: Francisco M. y Martinez, Taos. Union: N. F. Gallegos, Clayton. Valencia: Julian P. Connelly, Los Lunas.

Superintendents of city schools.—J. Martin, Roswell; R. H. Carter, Raton; M. R. Koehler, Silver City; Maggie J. Bucher, East Las Vegas; M. E. Hickey, Albuquerque; J. A. Woods, Santa Fe; W. W. Robertson, Deming.

Territorial institutions.—C. L. Herrick, president University of New Mexico, Albuquerque; F. W. Sanders, president Agricultural College, Las Cruces; C. M. Light, principal New Mexico Normal School, Silver City; T. A. Jones, director New Mexico School of Mines, Socorro; E. L. Hewett, president New Mexico Normal University, Las Vegas; Col. James G. Meadors, superintendent New Mexico Military Institute, Roswell; Lars M. Larson, superintendent School for Deaf and Dumb, Santa Fe.

HISTORY.

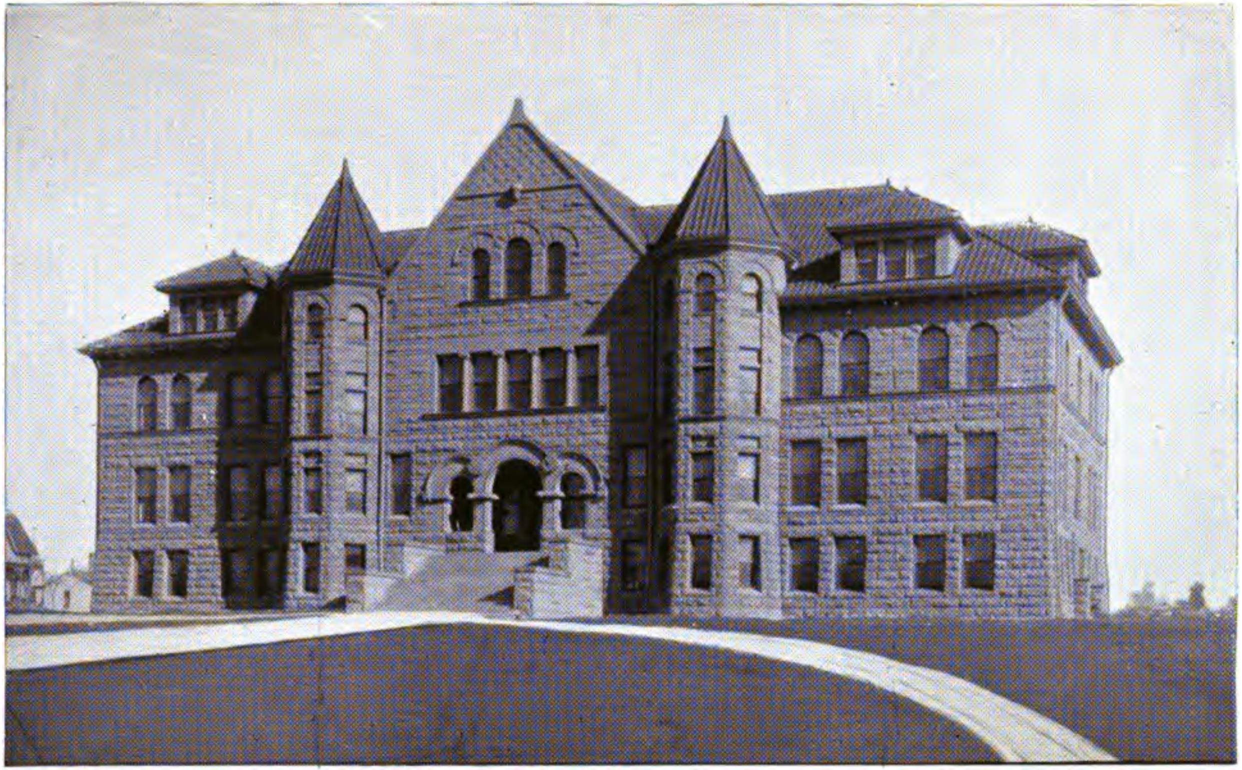
Investigation shows that New Mexico was settled by Spaniards in the year 1598. Previous to that time various expeditions sent by the Government of Spain had explored all the region now comprised within the boundaries of the Territory along the Rio Grande, but it was not until the 30th day of April, 1598, that formal possession was taken by Don Juan de Onate.

The objects for which possession was taken are stated at large in the act of possession, and they may be summarized as follows: "To reduce the country to the dominion of Spain; to settle and colonize it; to introduce into it all the necessary wagons, horses, oxen, sheep, and other live stock; to introduce the Spanish customs and laws, together with the Christian religion among the Indians; to civilize them, introducing among them the mechanical and industrial arts; to instruct them in the use of all those matters that would tend to their mental and moral advancement, and to assimilate them in such a way by the Spanish scheme of conquest that they might become a truly civilized people, learning everything that would increase their polity and happiness."

This colonizing expedition, comprising about four hundred men, among whom one hundred and fifty had their wives and children with them, carried with them all the implements and material for the building of a new civilization in the wilderness of the new country. They were accompanied by ten or twelve friars under the leadership of a commissary general.

In July of 1598 the first settlement was established at San Gabriel, near the locality where now stands the Indian pueblo of San Juan de los Caballeros, at the junction of the Chama and the Rio Grande. This place was the center of the Spanish government until, for various reasons, a short while afterwards, the settlement was transferred to Santa Fe, the present capital of the Territory.

Thereafter, the colony growing to such proportions that the valley lands of Santa Fe became too limited for their support, other towns were established, mainly in the vicinity of the pueblos along the Rio Grande, Rio Taos, and Rio Santa Cruz.



Normal University of New Mexico, Las Vegas, N. Mex.

The Spanish rule lasted until 1821. During that period the instruction of the Spanish and native children was in the hands of the Franciscans. However, from the very nature of their surroundings, and from their continual clashing with the haughty and domineering governors and civilians, little could be done by these clerical gentlemen for the educational cause. In 1777 a royal charter, supplemented in 1779 by a papal brief to the same effect, decreed the establishment of a college at Santa Fe. The buildings of the college were erected, and the lands for its maintenance were assigned; but just at that time the border savages became so hostile that the local government was taxed to the limit of its resources in repelling them, and nothing was done for the support of the college. The Indian troubles lasted until the beginning of the nineteenth century.

The star of Napoleon had by that time reached its zenith, and this restive warrior, having reared upon the ruins of the French Republic a dazzling and colossal empire, cast longing eyes upon the country beyond the Pyrenees and its rich possessions in the New World. As a consequence of the Napoleonic intervention in the Peninsula, the revolt of the Spanish colonies in America followed, and resulted, years afterwards, in the final establishment of separate and distinct republican governments.

Although New Mexico was too remote from the center of war to take any active part in it, nevertheless, it felt the effects of neglect in all its branches of industrial and educational affairs. And it is for this reason that we find New Mexico, at the ending of the Spanish rule, in practically the same condition as it was during the last century.

With the incoming of the republican government all regular clergy were expelled from the country, and the task of education devolved upon lay teachers. In this connection I will quote from the supplement of D. Jose Augustin de Escudero, to the memorial of Don Pedro Bautista Pino, this latter being the deputy for New Mexico to the Spanish Cortes. Escudero says, speaking in 1849, on the subject of schools in New Mexico: "At the residence of D. Juan Rafael Rascon, vicar-general, the young man, D. Guadalupe Miranda, confers upon the Territory the very special privilege of teaching several youths the elements of Spanish and Latin grammars and the rudiments of philosophy. The constancy and attainments of citizen Miranda can not be too much praised. And the progress made by his pupils also deserves encomium, more so from the fact that education encounters great obstacles there, from various causes, among which may be mentioned a scarcity of text-books. May heaven grant to New Mexico some institution of learning where its sons may receive educational training according to the requirements of the century."

In 1829 the Spanish population of New Mexico was 43,433, and it had 18 schools taught by 18 teachers.

In 1840 the population was 55,403, but I have been unable to find statistics giving the number of schools. One thing is certain, however, that at this period some of the Territorial schools were supported by private contributions altogether, and others were supported by private contributions and by government annual appropriations. Those schools so receiving government support were the following:

Santa Fe	$500.00
San Miguel del Bado	250.00
Canada	300.00
Taos	250.00
Albuquerque	300.00
Belen	250.00
Total	1,850.00

In 1848 New Mexico, by the treaty of Guadalupe-Hidalgo, became a part of the United States. Soon afterwards the Catholic Church commenced a good educational work, and endeavored to reach as many children as possible. The resources of the church, however, were not sufficient for the carrying on, in a satisfactory manner, of its noble work.

The Christian Brothers first opened St. Michael's College at Santa Fe in 1859. Other denominations soon followed with the establishment of day and boarding schools in different parts of the Territory. And in this manner all these pioneers of education prepared the way for the elaborate system that was soon to spread through the whole of the Territory. Under the influence of these sectarian schools the percentage of illiteracy was greatly reduced in a very few years.

BEGINNING OF OUR PUBLIC-SCHOOL EDUCATION.

Since 1850 we have had a Territorial organization under the United States and have, since that date, enjoyed the benefits of a free government. But the United States have neglected the education of our people, and we have been left to work out our own salvation as best we might under peculiar and difficult circumstances. We have found it possible, however, to make progress under a free government, and we have overcome many of our difficulties. The people of the Territory have always hungered after education, and have ever realized its power and importance; therefore, all those who could have sent their children to the Eastern cities for training in the best schools. But the bulk of the population have been without the opportunities of instruction, save the most elementary kind, until the year 1872, when the legislature of New Mexico passed the first Territorial school law.

This law provides for the establishment of public schools to be supported by taxation. From that time we have labored persistently and honestly to build up among us a public-school system, for the purpose of giving to every boy and girl in the Territory the opportunity of securing a good and substantial common-school training.

This said law provided a board of county school supervisors composed of five citizens for each county. It was empowered to have the sole and entire management, supervision, and control of the public schools within its respective county, and to make such rules and regulations for the government, system, and organization of said schools as should be most proper, suitable, and necessary for the local requirements and circumstances of each county. The control and expenditure of the school fund was left entirely to their judgment; they were intrusted with all matters relating to the schools, and a very broad discretion was left to them.

At the same session of the legislature another act was passed providing for a tax levy of 1 per cent on the assessed valuation of the property in the Territory, one-half per centum for Territorial purposes, one-fourth per centum for school purposes, and the remainder for county purposes. But this law was necessarily crude, and the best results could not be obtained. The amount of taxable property was limited, and it was not possible at once to step into a perfect school system that might compare favorably with the older systems of the Eastern States. The population being scattered over a large extent of country made it difficult to reach the children that might have been reached had they been closer together; again, the lack of sufficient funds was a very serious difficulty. Notwithstanding, schools were established in every precinct of the Territory, and the work of educating the masses was started in a very creditable manner.

In the year 1884 the legislature, being alive to the vital defects in the former law, repealed the same and enacted another entirely different one. This new act created the office of county school superintendent, and pointed out the various branches of elementary knowledge that should be taught. By this same law the school districts and the district school directors were established and created, and each school district was made a corporation with powers to act as a corporate body.

In 1891 the legislature, again amending and enlarging the school laws, established a Territorial board of education, composed of the governor, the Territorial superintendent of public instruction (this office being first created by this act), the president of St. Michael's College, the president of the University of New Mexico, and the president of the agricultural college at Las Cruces. The powers of said board are such that it has it within its power to greatly promote the educational cause, and it has done so by establishing and inaugurating many valuable and needed reforms.

This law of 1891 enacts that school boards must furnish the necessary schoolhouses, teachers, fuel, and supplies for the schools. It also provides for a tax levy on the taxable property in each district not to exceed 5 mills on the dollar of the assessed valuation. It provides, likewise, for a tax levy not to exceed 3 mills on the dollar of the assessed valuation of all the property in each county for school purposes, which shall be apportioned among the school districts, and the same is to be expended in teachers' salaries, etc. This law enacts that the school fund shall be kept separate from all other funds of the Territory.

It will be seen that a levy of 8 mills on the dollar is the maximum of taxation to create a school fund. Besides this, a poll tax of $1 on each able-bodied male person over the age of 21 years is also laid for school purposes. The law compels the attendance at school of all children between the ages of 8 and 16 years for no less than three months in each year.

The records of the office of the Territorial auditor having been destroyed by fire some years ago, it is not now possible for me to obtain statistics covering the entire period in which our public-school system has been in operation. Records are only available since the year 1891. Previous to that time all records pertaining to public educational matters in the Territory were in the custody of the Territorial auditor.

But I take pleasure, in this connection, in saying that since 1891 to this day the progress made by our schools is a matter of pride and satisfaction to the people of New Mexico.

In 1891 the amount of money raised for school purposes under the law reached $85,192.17; the average daily attendance was 12,397 pupils; the number of teachers employed was 407; the average length of school term for the Territory was three months in the year; the average daily attendance at each school was 34 pupils.

In 1895 $154,107.38 was raised for school purposes; the number of teachers employed was 538; the average daily attendance for the Territory was 15,081 pupils; the average daily attendance at each school was 28 pupils; the average length of school term was four months.

In 1898 the amount of money raised for school purposes was $182,178.18; the number of teachers employed was 541; the average daily attendance for the Territory was 16,558 pupils; the average daily attendance for each school was 30 pupils; the average number of months taught was 5.

In 1899 the amount of money raised for school purposes was $241,520; the number of schools was 513; the number of teachers employed, 575, of whom 358 were males and 217 were females; the enrollment for the year was 21,761 pupils; the number of months taught in the Territory was 2,070; the average number of months taught in each school was 4; the average daily attendance for each school was 42 pupils; the amount expended in the payment of teachers' wages aggregated $99,145.19, or an average of $39.19 monthly salary for each teacher.

The sum of $21,927 was expended for rent and fuel, and the sum of $13,183.71 was paid for repairing and maintenance of schoolhouses and school grounds.

TERRITORIAL INSTITUTIONS.

I beg to call particular attention to the reports of our Territorial institutions of learning. They will be found as a part of this report. The Territory boasts to-day of a university, a school of mines, a college of agriculture and mechanic arts, a normal university, a normal school, a military institute, and a school for the deaf, dumb, and blind. These institutions are thoroughly equipped in all particulars, and have made most satisfactory progress, as will be seen by the following extracts from the reports of the superintendents and principals of said schools:

The university.—This institution received for the year ending June, 1899, $11,804.35; enrollment was 170 pupils; it employed 16 teachers, and the number of months that school was taught was ten. Amount of salary paid teachers, $10,451.55; for rent and fuel, $4,550.96; value of property, $45,000.

New Mexico College of Agriculture and Mechanic Arts.—Received $48,090.48; had 177 pupils enrolled; taught nine months and employed 22 teachers; paid in teachers' salaries, $26,342.56, and for schoolhouses and grounds, $15,549; has property to the value of $89,000.

School of Mines.—Received $5,377.70; had an enrollment of 68 pupils; school was taught for nine months and employed 3 teachers; salaries, $3,713.32; rent and fuel, $1,329.52; has property to the value of $55,000.

Normal School of Silver City.—Received $4,852.94; had an enrollment of 85 pupils; taught ten months and employed 5 teachers; expended in teachers' salaries, $4,060.05; in rent and fuel, $1,716.60, and has property to the value of $20,000.

School for the Deaf, Dumb, and Blind.—Received $1,200; had an enrollment of 13 pupils; taught eight months; had 1 teacher, and expended in teacher's salary and fuel, $1,200; has property to the value of $5,000.

New Mexico Military Institute.—Received from the Territory, $6,500, and from private tuitions, $9,500; had an enrollment of 105 pupils; taught ten months during the year and employed 5 teachers; expended in teachers' salaries, $5,000; in light and fuel, $1,200; furnishing and repairs, $1,300; erection of buildings, $2,500; maintenance of subsistence and laundry department, $7,000, and has property to the value of $30,000.

New Mexico Normal University.—Received $11,020.53; has an enrollment of 197 pupils; taught nine months; employed 7 teachers; expended in teachers' salaries, $7,229.92; in light, fuel, furnishing, and repairs, $3,790.61, and has property to the value of $55,000.

CITY SCHOOLS.

The following are the statistics of the schools in the incorporated towns and cities of the Territory and not comprised in the report:

Albuquerque.—Received $25,948.99; had an enrollment of 1,013 pupils; employed 9 teachers; had 9 schools and taught nine months in each school; expended $12,753.50 in teachers' salaries and $7,396.33 for rent and fuel; has property to the value of $64,336.90.

Deming.—Received $8,262.95; had an enrollment of 769 pupils in 4 schools; employed 9 teachers, and taught nine months; expended $8,262 in teachers' salaries, rent, and fuel.

East Las Vegas.—Received $8,600.46; had 12 schools, with an enrollment of 696 pupils; employed 12 teachers; taught nine months; expended in teachers' salaries, $5,650; in rent and fuel, $2,390.94; has property to the value of $15,000.

Raton.—Received $4,667.10; had 4 schools, with an enrollment of 531 pupils; employed 11 teachers, and taught eight months; expended in teachers' salaries, rent, and fuel, $4,667.10, and had property to the value of $25,000.

Roswell.—Had an enrollment of 348 pupils; had 2 schools; employed 4 teachers; taught nine months in each school.

Gallup.—Received $10,554.70; has 7 schools, with an enrollment of 358 pupils; employed 7 teachers; taught nine and a half months in each school; expended in teachers' salaries, $5,171.20; rent and fuel, $1,927.08; houses and grounds, $1,345.95; has property to the value of $15,000.

Santa Fe.—Received $9,230; had nine schools; enrolled 520 pupils; employed 9 teachers, and taught eight months in each school; expended in teachers' salaries, $6,000; rent and fuel, $930; has property to the value of $5,000.

Silver City.—Received $5,608.38; had 6 schools, with an enrollment of 436 pupils; employed 6 teachers, and taught ten months; expended $4,150 in teachers' salaries; rent and fuel, $871.58; has property to the value of $8,000.

Socorro.—Received $1,913; had 2 schools, with an enrollment of 286 pupils; employed 5 teachers; taught four months in each school; expended in teachers' salaries, $575; rent and fuel, $406.71; has property to the value of $16,500.

Recapitulation.—It will be seen from the above figures that the enrollment in the common and city schools and Territorial institutions for the year 1898–99 was 27,173 pupils, as against 12,397 in 1891; an increase of 14,776 in seven years.

That the total amount of money raised in 1898–99 for common and city schools and Territorial institutions was $414,653.70, as against $85,192.17 in 1891; an increase of $329,460.53 in the same period of time.

That the total number of schools in the year 1898–99 was 576, as against 407 in 1891; an increase of 169 in the number of schools during that period.

That in 1898–99 there were 706 teachers, as against 407 in 1891; an increase in the number of teachers of 299 during that time.

That in 1898–99 the number of school months averaged about four months and eight days, as against an average of three months in 1891. (In this connection it is to be remarked that many schools were suspended in 1898–99 on account of the prevalence of contagious disease.)

That the average daily attendance for 1898–99 at each school was 42 pupils, as against 34 pupils in 1891.

That the amount of money expended in 1898–99 for teachers' salaries, at common and city schools and Territorial institutions, was $208,162.95.

Sectarian schools.—The Catholic Church supports 18 schools, attended by 1,602 pupils. It employs 72 teachers, and has school property to the value of $217,700.

The Methodist Church supports 11 schools, attended by 426 pupils, and has school property valued at $10,000.

The New West Educational Commission supports 5 schools, attended by 219 pupils, employs 7 teachers, and has school property to the value of $44,000.

The Presbyterian Church supports 25 schools, attended by 1,105 pupils. It employs 25 teachers, and has school property to the value of $37,900.

The average number of months taught by the sectarian schools is nine months in the year.

English.—In reference to the knowledge of the English language, the following facts will explain themselves and dispel the idea that English only to a slight extent is spoken in the Territory:

The census of 1890 gives 61.11 as the percentage of those unable to speak English. The same factors proving the decrease of illiteracy also prove the increase of the English language.

First, there is the death rate of the original settlers; second, an immigration of 70,000, all of which, with hardly an exception, speak English and are of Anglo-Saxon descent; third, a total enrollment, embracing seven years, of 150,000 in 513 schools, taught by 575 teachers, each and every one speaking and teaching English.

From the above facts a conservative estimate can be made proving that to-day the percentage of the inhabitants of the Territory unable to speak English will not at the utmost exceed 15 per cent.

Normal institutes.—The legislature of 1897 enacted a law authorizing the holding of normal institutes for the benefit of teachers. While that law is very defective in several vital points, it still is very gratifying to notice that various normal institutes have been successfully conducted in quite a number of counties of the Territory.

Educational association.—Before closing this report I must add a few words about the convention of the New Mexico Educational Association held at Santa Fe during the Christmas holidays of the past year. The meeting of this association at that time and place forms an epoch in our educational movement. Professors and teachers from all over the Territory, defraying their own expenses and many of them traveling over 300 miles, were present at that meeting. The convention lasted for three days, and the matters there discussed covered a wide range. Notable among the papers read was one by Prof. F. W. Sanders on the subject of "The educational aspect of the ideal in its relation to historic truth." All the leading residents of the capital city vied with each other in extending courtesies to the members of the association, and it was an event to be treasured up in the memory of all the citizens of New Mexico.

These annual gatherings of our teachers and educators can not but raise the standard of efficiency among them, and it is to be hoped that both the pulpit and the press will encourage them in their noble efforts. These men and ladies deserve the moral support of everybody. Finally, to all those who had the pleasure of attending the sessions of that convention one thing was apparent, and it is that if New Mexico is admitted into the Union as a State she need not fear to suffer by the comparison of her teachers with the teachers of the older Commonwealths.

District schools in New Mexico.

BERNALILLO COUNTY.

District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages or 5 and 21 years.			Schools.	Months taught.	Receipts.			
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Dec. 1, 1898.	From county school fund.	Poll tax, fines, etc.	Total.
1	1	2	2	4	86	86	172	58	68	126	380	300	680	4	40	$850.64	$2,481.26	$137.82	$3,469.72
2	2	2	2	4	75	75	150	56	60	116	150	147	300	2	16	422.31	1,135.00	33.33	1,590.64
3	3	1	......	1	40	56	96	32	46	78	60	76	136	1	8	90.00	393.80	132.87	526.67
4	4	1	......	1	62	60	122	58	53	111	85	73	158	1	8	190.81	432.40	....	623.21
5	5	......	2	2	53	53	106	41	44	85	106	111	217	2	16	305.70	611.60	173.82	1,091.12
6	6	1	......	1	28	20	48	23	16	39	61	63	124	1	9	245.40	515.20	....	760.60
7	7	......	1	1	26	23	49	21	19	40	41	31	72	1	8	121.00	218.00	8.05	347.05
8	8	1	......	1	31	29	60	25	23	48	77	66	143	1	8	311.48	405.40	17.83	734.71
9	9	1	......	1	51	34	85	40	29	69	100	120	220	1	10	259.11	487.00	116.68	862.79
10	10	1	......	1	24	3	27	19	3	22	33	35	68	1	6	127.75	190.40	51.92	370.07
11	11	......	1	1	18	21	39	12	11	23	85	80	165	1	8	124.71	497.00	....	621.71
12	26	9	12	21	555	458	1,013	341	308	649	738	702	1,440	9	189	5,799.16	21,200.00	1,849.41	25,948.99
13	13–35	......	6	6	165	133	298	125	115	240	277	267	244	6	60	233.27	1,492.60	1,375.74	3,101.61
14	14	......	1	1	22	21	43	12	16	28	50	50	100	1	9	234.38	300.00	75.50	609.88
15	15	1	......	1	37	37	74	27	22	49	59	61	120	1	7	229.67	326.00	66.68	622.35
16	16	1	......	1	19	10	29	13	7	20	42	31	73	1	5	143.00	194.40	....	337.40
18	18	1	......	1	16	10	26	13	9	22	42	18	60	1	5	57.11	169.00	60.10	286.21
19	19	1	......	1	42	13	55	19	8	27	36	83	119	1	7	120.61	333.20	26.61	480.42
20	20	1	......	1	29	26	55	21	20	41	44	40	84	1	7	95.12	217.20	47.90	260.22
21	21	1	......	1	33	13	46	25	10	35	82	61	143	1	7	230.83	329.00	100.00	659.83
22	8	1	......	1	28	13	41	24	9	33	57	48	105	1	5	240.53	292.00	40.17	572.70
23	23	1	......	1	25	20	45	13	15	28	37	38	75	1	7	235.89	220.00	32.67	488.56
24	24	1	......	1	13	13	26	11	9	20	20	26	46	1	3	28.15	110.80	....	138.95
25	25	1	......	1	43	37	80	30	23	53	53	53	106	1	8	224.95	286.80	33.34	545.09
27	30	2	5	7	198	160	358	140	115	255	225	280	505	7	65	1,145.78	8,634.00	774.92	10,554.70
28	28	1	......	1	29	17	46	27	13	40	77	50	127	1	9	819.36	355.60	93.66	768.62
29	18	......	1	1	8	24	32	8	20	28	24	56	80	1	5	148.00	235.00	60.39	443.39
31	31	......	1	1	21	13	34	17	10	27	30	15	45	1	4	94.50	126.00	....	220.50
32	32	1	......	1	20	23	43	13	19	32	45	47	92	1	5	242.48	256.60	....	499.08
33	33	1	......	1	21	23	44	19	19	38	43	52	95	1	6	268.10	269.00	16.67	553.77
34	22	......	1	1	12	16	28	10	5	15	19	13	32	1	4	62.17	89.60	25.47	177.24
35	3	1	......	1	22	26	48	20	23	43	46	30	76	1	7	1,228.84	212.80	38.28	479.92
36	4	1	......	1	20	38	58	17	25	42	41	39	80	1	7	298.80	216.00	....	559.30
37	28	1	......	1	8	10	18	6	9	15	20	17	37	1	6	88.13	99.60	6.22	198.95
39	23	1	......	1	21	22	43	19	17	36	33	33	66	1	6	132.83	156.20	11.12	299.65
40	37	......	1	1	32	31	63	29	27	56	43	36	79	1	9	544.34	185.20	569.85	1,299.39

41	22	.....	1	1	15	24	39	11	17	28	20	24	44	1	6	19.29	125.20	13.39	157.88
42	20	1	.....	1	30	29	59	27	23	50	52	36	88	1	6	120.67	243.40	18.76	382.83
43	16	1	.....	1	12	19	31	7	11	18	28	18	46	1	4	55.31	121.80	.....	177.11
44	7	1	.....	1	24	13	37	12	12	24	30	18	48	1	5	147.00	143.00	.....	290.00
45	22	1	.....	1	20	21	41	18	17	35	28	32	60	1	6	105.42	162.00	13.84	281.26
46	24	1	.....	1	17	13	30	14	12	26	20	22	42	1	4	37.55	100.60	.....	138.15
47	34	1	.....	1	31	30	61	28	27	55	75	76	151	1	8	252.91	408.80	.....	661.71
48	28	1	.....	1	26	20	46	20	15	35	56	41	97	1	7	194.00	258.60	34.32	486.92
51	17	1	1	2	52	39	91	30	35	65	111	94	205	2	14	416.87	587.00	270.43	1,274.30
52	17	2	.....	2	25	18	43	24	17	41	62	55	117	2	10	46.29	310.60	62.90	419.79
53	21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	59.28	71.00	146.95	40.00
54	10	1	.....	1	28	36	64	10	18	28	28	36	64	1	5	94.54	169.20	32.76	296.50
55	16	1	.....	1	16	11	27	13	10	23	18	15	33	1	3	33.36	89.00	6.72	129.08
Total (49)	50	50	88	88	2,229	1,935	4,164	1,599	1,370	2,969	3,889	3,715	7,604	74	667	13,174.82	46,508.86	6,446.81	66,130.49

District.	Expenditures.				On hand.	List of studies.							Value of property.
	Teachers' wages.	Rent, fuel, etc.	School houses and grounds.	Total.		Reading and spelling.	Writing.	Grammar.	Geography.	Arithmetic.	United States history.	Physiology and hygiene.	
1	$2,324.75	$131.98	.....	$2,456.73	$1,012.99	129	123	45	64	103	31	27	.....
2	577.70	259.12	.....	836.82	753.82	85	75	37	37	56	20	10	$1,300.00
3	310.00	103.15	.....	413.15	203.52	86	75	35	35	58	23	12	.....
4	281.25	116.45	.....	397.70	225.51	102	86	27	27	47	13	13	300.00
5	690.75	182.19	.....	872.94	218.18	49	47	30	28	41	17	10	1,200.00
6	450.00	142.50	.....	168.10	592.50	48	21	13	13	35	10	5	300.00
7	210.00	41.00	.....	251.00	96.05	19	19	3	7	19	7	3	250.00
8	310.00	83.70	.....	393.70	341.01	23	27	6	8	21	3	3	.....
9	440.00	42.75	.....	482.75	380.04	85	51	12	15	51	10	10	700.00
10	210.00	54.00	.....	264.00	106.07	19	17	3	3	17	3	3	.....
11	320.00	186.10	.....	506.10	115.61	32	27	8	16	30	8	10	.....
12	12,753.50	7,396.33	.....	20,149.83	5,799.16	.....	.....	.....	.....	.....	.....	.....	64,336.90
13	2,362.50	20.00	.....	2,382.50	719.11	65	33	27	27	33	20	20	.....
14	235.00	48.00	.....	283.00	326.88	30	21	3	3	15	3	8	250.00
15	280.00	33.00	.....	313.00	309.35	40	27	2	2	18	2	2	250.00
16	138.00	34.55	.....	172.55	164.85	13	7	.....	.....	10	.....	.....	.....
18	160.00	27.90	.....	187.90	98.31	13	10	.....	3	13	1	.....	.....
19	225.00	26.40	.....	251.40	229.02	41	38	7	13	41	7	10	.....
20	220.00	51.50	.....	271.50	88.72	30	22	8	8	19	8	5	.....
21	385.95	93.00	.....	478.95	180.88	35	27	8	9	22	3	10	250.00
22	180.00	44.00	.....	224.00	348.70	39	28	7	7	27	5	6	.....
23	210.00	82.55	.....	229.55	196.01	45	36	8	8	29	6	6	.....
24	79.95	13.00	.....	92.95	46.00	26	20	9	12	23	9	9	.....
25	210.00	.....	.....	210.00	335.09	61	54	13	13	54	13	13	250.00
27	5,171.20	1,927.08	$1,345.95	8,444.23	2,110.27	.....	.....	.....	.....	.....	.....	.....	1,500.00
28	270.00	145.13	.....	415.13	353.49	46	40	13	13	35	13	13	400.00
29	215.00	35.00	.....	250.00	193.39	17	15	3	3	15	3	7	300.00
31	95.00	.....	.....	95.00	125.50	21	20	3	3	9	2	3	.....

District schools in New Mexico—Continued.

BERNALILLO COUNTY—Continued.

District.	Expenditures.				On hand.	List of studies.							Value of property.
	Teachers' wages.	Rent, fuel, etc.	School houses and grounds.	Total.		Reading and spelling.	Writing.	Grammar.	Geography.	Arithmetic.	United States history.	Physiology and hygiene.	
32	$255.00	$64.80		$319.80	$179.28	29	25	8	8	27	3	10	$120.00
33	240.00	78.95		318.95	234.82	44	20	9	9	30	3	7	
34	127.00	25.00		152.00	25.24	10	10			7			
35	210.00	94.75		304.75	175.17	48	28	11	10	30	7	10	
36	189.00	84.65		273.65	285.65	43	29	5	6	30	9	10	
37	120.00			120.00	73.95	18	18	3	3	18	7	7	
39	125.00	34.65		159.65	140.00	30	30	5	5	25	3	3	
40	600.00	137.82		737.92	561.47	54	27	15	15	29	15	15	400.00
41	100.00	12.50		112.50	45.38	39	27	7	7	35	7	15	
42	310.00	45.95		355.95	26.88	40	40	7	5	40	5	5	250.00
43	100.00	20.50		120.50	56.61	27	27	3	3	20	3	3	
44	100.00	48.00		148.00	142.40	32	30	5	5	30	5	5	
45	125.00	66.90		191.90	89.36	41	41	5	5	32	5	5	
46	78.75	12.00		90.75	47.40	27	27	3	3	27	3	3	
47	360.00	96.45		456.45	205.26	29	29	8	8	29	8	8	
48	240.00	53.35		293.35	193.35	40	40	10	10	40	10	10	350.00
51	651.00	189.70		840.70	438.60	82	82	21	21	80	15	10	
52	260.00	53.00		313.00	106.79	40	40	12	12	41	12	12	
53				40.00	106.95								400.00
54	130.00	160.00		146.00	150.50	60	60	14	14	61	14	12	60.00
55	60.00			60.00	69.08	10	10		5	10	5		
Total (49)	33,736.30	12,455.35	$1,345.95	47,537.60	18,592.89								86,666.90

CHAVES COUNTY

District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of 5 and 21 years.			Schools.	Months taught.	Receipts.			Expenditures.	On hand.	List of studies.						
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Dec. 1, 1898.	From county school fund.	Total.			Reading and spelling.	Writing.	Grammar.	Geography.	Arithmetic.	United States history.	Physiology and hygiene.
1	1	1	4	5	149	199	348	136	153	289	259	249	508	2	9	....	....	....	....	....	....	....	....	....	....	....	....
2	1	....	1	1	20	22	42	16	10	26	21	31	52	1	7	$480.94	$560.98	$1,041.87	$438.92	$602.95	1	1	1	1	1	1	1
3	3	....	1	1	7	5	12	3	2	5	18	12	30	1	4	282.71	421.13	703.84	138.00	565.84	1	1	1	1	1	1	1
4	3	....	1	1	2	2	4	1	2	3	11	13	24	1	6	106.08	600.38	706.46	100.00	606.46	1	1	1	1	1	1	1
5	3	....	....	....	....	....	....	....	....	....	9	11	20	1	....	212.00	498.82	710.82	30.00	680.82	1	1	1	1	1	1	1
6	2	1	1	2	33	34	67	27	29	56	44	40	84	1	9	198.49	1,739.96	1,938.45	591.10	1,347.35	1	1	1	1	1	1	1
7	2	....	2	2	9	11	21	7	9	16	25	20	45	1	5	64.89	851.23	1,235.37	1,051.81	502.81	1	1	1	1	1	1	1
8	3	....	....	....	....	....	....	....	....	....	13	18	31	1	....	62.74	391.44	454.18	....	454.18	1	1	1	1	1	1	1
9	3	....	1	1	7	11	18	5	9	14	27	30	57	1	6	266.81	252.82	519.63	175.00	344.63	1	1	1	1	1	1	1
10	1	1	....	1	10	12	22	6	7	13	20	26	46	1	9	123.78	609.52	733.30	299.62	433.68	1	1	1	1	1	1	1
11	....	....	....	....	....	....	....	....	....	....	17	18	35	1	....	144.46	299.30	413.76	95.00	318.76	1	1	1	1	1	1	1
12	2	....	1	1	12	15	27	9	12	21	20	19	39	1	....	65.22	446.97	512.19	548.54	548.54	1	1	1	1	1	1	1
13[1]	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	266.74	....	....	....	....	....	....	....	....	....	....
14[1]	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
15[1]	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	166.08	166.08	150.00	16.08	....	....	....	....	....	....	....
16[1]	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Total (16)	....	3	12	15	249	311	561	290	234	524	484	487	971	17	55	3,081.74	6,505.30	9,537.04	3,663.48	5,878.56	....	....	....	....	....	....	....

[1] Organized Sept. 1, 1899. Formerly part of Lincoln County. No report last year.

District schools in New Mexico—Continued.

COLFAX COUNTY.

District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of 5 and 21 years.			Schools.	Months taught.	Receipts.				Expenditures.			On hand.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Dec. 1, 1898.	From county school fund.	Poll tax, fines, etc.	Total.	Teachers' wages.	Rent, fuel, etc.	Total.	
1	1	....	2	2	51	45	96	33	35	68	108	113	221	1	9	$765.82	$420.10	$338.51	$1,524.43	$760.00	$79.47	$839.47	$684.96
2	2	....	1	1	9	11	20	3	6	9	14	13	27	1	2	96.08	59.40	64.00	219.48	70.00	....	70.00	149.48
3	3	....	1	1	27	19	46	14	11	25	64	45	109	1	7	463.24	374.00	163.93	1,001.17	225.00	6.00	331.00	770.17
4	14	....	2	2	25	26	51	18	19	37	38	38	76	1	4½	267.97	198.00	72.56	538.53	196.25	14.85	211.10	327.43
6	17	1	....	1	7	10	17	4	6	10	25	28	53	1	2	193.05	116.60	....	309.65	60.00	12.50	72.50	237.15
7	4	....	1	1	12	16	28	11	10	21	16	17	33	1	4	163.45	92.40	....	255.85	25.00	....	25.00	230.85
8	11	....	1	1	10	15	25	8	11	19	12	19	31	1	3	82.29	143.00	203.28	428.57	240.40	4.00	244.40	184.17
9	5	1	....	1	8	9	17	6	7	13	17	10	27	1	7	167.92	185.20	....	353.12	140.00	18.00	158.00	195.00
10	21	....	1	1	22	16	38	15	10	25	25	35	60	1	4	147.42	132.00	....	279.42	200.00	....	200.00	79.42
11	6	2	9	11	261	270	531	236	261	497	222	644	866	4	8	1,540.64	1,288.60	1,837.86	4,667.10	(1)	(1)	(1)	(1)
14	22	....	1	1	20	24	44	9	12	21	25	30	55	1	3	81.06	176.80	51.48	309.70	96.25	....	102.29	207.41
15	15	1	...	1	17	14	31	8	10	18	33	37	70	1	3	99.56	105.60	....	205.16	90.00	4.25	94.25	110.91
18	7	1	....	1	4	8	12	2	3	5	20	30	50	1	3	128.20	110.00	....	238.20	150.00	6.00	156.00	82.20
19	21	....	1	1	13	15	28	5	9	14	42	41	83	1	4	172.15	147.40	....	319.55	120.00	....	120.00	199.55
20	10	1	....	1	14	22	36	7	10	17	49	32	81	1	5	103.13	167.20	9.17	279.50	127.75	15.00	142.75	136.75
23	18	1	....	1	5	3	8	2	3	5	12	18	30	1	4	110.62	66.00	23.04	199.66	173.25	5.28	178.53	21.18
24	12	2	1	3	61	60	121	39	26	65	134	112	246	1	5	1,358.64	416.90	863.29	2,638.83	648.50	1,189.24	1,837.74	801.09
26	18	....	1	1	12	14	26	5	7	12	42	38	80	1	8	1,019.84	158.40	369.97	1,548.21	437.50	64.05	501.55	1,046.66
27	16	1	2	3	47	49	96	22	42	64	119	101	220	2	8	535.17	484.00	108.12	1,127.29	650.00	562.63	1,212.63	85.51
28	15	1	....	1	11	21	32	7	14	21	44	26	70	1	3	160.62	138.60	1.73	300.95	150.00	....	150.00	150.95
30	5	1	....	1	13	13	26	9	12	21	23	13	36	1	7	274.28	101.20	....	375.48	247.10	7.75	254.85	120.63
31	1	1	....	1	5	4	9	4	4	8	20	15	35	1	4	283.07	77.00	....	360.07	225.00	....	225.00	135.07
32	8	1	....	1	22	6	28	20	3	23	20	28	48	1	4	198.94	105.60	....	304.54	120.00	13.00	133.00	171.54
36	21	1	....	1	23	15	38	13	11	24	29	18	47	1	3	154.48	99.00	19.01	272.49	105.00	....	105.00	167.49
37	21	....	1	1	18	20	38	16	14	30	27	34	61	1	3	152.90	182.60	28.80	364.30	105.00	28.80	133.80	230.50
39	19	1	....	1	9	15	24	7	11	18	46	47	93	1	5	257.82	156.20	4.04	418.06	253.94	8.40	262.34	155.72
Total (26)	26	17	25	42	728	741	1,469	514	890	1,404	1,226	1,582	2,808	30	122	8,978.36	5,702.80	4,149.25	18,830.41	5,715.94	1,745.26	6,961.20	11,369.21

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[1] Entire amount paid to city treasurer.

DOÑA ANA COUNTY.

District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of 5 and 21 years.			Schools.	Months taught.	Receipts.				Expenditures.				On hand.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Dec. 1, 1898.	From county school fund.	Poll tax, fines, etc.	Total.	Teachers' wages.	Rent, fuel, etc.	School houses and grounds.	Total.	
1	2	1	1	2	34	31	65	20	17	37	69	62	131	1	8	$228.18	$288.45	$59.10	$515.73	$302.65	$45.95	$59.00	$407.60	$108.18
2	3,20	....	5	5	202	86	288	131	57	188	445	377	822	2	6	1,070.28	1,206.40	931.80	3,208.48	1,590.00	267.47	324.75	2,182.22	1,026.24
3	19	....	1	1	26	16	42	10	11	21	43	36	79	1	6	147.39	120.35	141.00	408.74	250.00	9.76	....	259.76	148.98
4	22	....	1	1	16	10	26	10	6	16	92	89	181	1	3	127.02	179.80	19.56	326.38	120.00	21.38	....	141.38	185.00
5	8	....	1	1	28	30	58	18	18	37	87	88	175	1	5	123.95	271.15	38.40	433.50	175.00	12.50	....	187.50	246.00
6	15	....	1	1	16	10	26	11	11	23	82	79	161	1	2	123.30	200.10	8.00	331.40	60.00	25.65	50.00	135.65	195.75
7	11	1	....	1	23	16	39	17	7	24	56	48	104	1	3	62.05	101.50	41.60	212.12	105.00	65.55	....	170.56	41.57
8	10	....	2	2	54	29	83	35	20	55	120	90	210	1	4	378.54	126.00	160.00	664.54	593.65	35.89	35.00	664.54	....
9	14	1	....	1	....	....	....	....	....	....	68	61	129	1	4	300.51	65.40	343.34	709.25	370.00	....	339.25	709.25	....
10	16	....	1	1	42	28	70	38	20	58	150	108	258	1	8	311.59	317.55	55.77	684.91	407.50	82.20	....	489.70	195.21
11	12	1	....	1	27	27	54	17	17	35	63	77	140	1	6	66.56	163.85	76.20	306.61	200.00	40.05	....	240.05	66.56
12	4–5	....	1	1	70	53	123	31	29	61	231	194	425	2	5	152.98	616.25	5.47	774.70	460.90	46.00	....	506.90	267.80
13	7	....	1	1	7	8	15	3	4	7	52	52	104	1	4	188.94	145.00	....	333.94	140.00	10.00	....	150.00	183.94
14	1	....	1	1	13	8	21	8	5	13	25	22	47	1	3	8.25	21.75	70.00	100.00	80.00	....	....	80.00	20.00
15	21	1	....	1	34	29	63	18	18	37	56	56	112	1	3	29.76	46.20	70.83	146.79	146.79	....	....	146.79	....
16	18	....	1	1	16	16	32	9	7	16	79	74	153	1	5	267.66	229.10	26.10	522.86	175.00	27.10	....	202.10	320.76
17	18	....	1	1	9	4	13	6	3	9	64	41	105	1	2	29.39	72.50	....	101.89	59.00	....	....	59.00	42.89
18	23	....	1	1	7	6	13	2	1	4	30	30	60	1	4	169.54	33.00	....	202.54	188.94	13.60	....	202.54	....
19	22	1	....	1	12	12	24	8	9	17	34	24	58	1	3	77.22	112.10	5.00	224.32	100.35	....	....	100.35	123.79
20	2	....	1	1	6	7	13	4	6	11	26	16	42	1	3	46.94	89.90	8.00	144.84	100.00	....	....	100.00	44.84
21	2	....	1	1	11	12	23	8	8	17	38	38	76	1	3	27.44	91.35	21.50	140.29	75.00	2.00	....	77.00	63.29
22	13	....	....	....	....	....	....	....	....	....	11	19	30	....	....	20.35	52.20	16.00	88.55	31.00	....	....	31.00	57.55
23	14	....	....	....	....	....	....	....	....	....	33	28	61	....	....	112.14	27.00	14.21	153.35	120.35	33.00	....	153.35	....
24	17	....	1	1	33	30	63	30	26	57	77	37	114	1	2	....	68.40	146.00	214.40	214.40	....	....	214.40	....
25	21	....	....	....	....	....	....	....	....	....	20	21	41	....	....	15.30	24.60	5.50	45.40	30.10	15.30	....	45.40	....
27	9	....	....	....	....	....	....	....	....	....	36	28	64	....	....	58.07	28.80	....	86.87	....	86.87	....	86.87	....
28	6	1	....	1	12	15	27	5	9	15	38	23	61	1	3	16.80	81.20	....	98.00	32.50	3.00	....	35.50	62.50
31	23	....	....	....	....	....	....	....	....	....	....	....	....	....	....	42.71	....	....	42.71	....	....	....	....	42.71
Total (28).	30	7	22	29	698	483	1,181	439	309	748	2,125	1,818	3,943	25	95	4,204.83	4,754.90	2,263.38	11,223.11	6,128.13	843.27	808.00	7,779.40	3,443.71

District schools in New Mexico—Continued.

EDDY COUNTY.

District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of 5 and 21 years.			Schools.	Months taught.	Receipts.				Expenditures.				On hand.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Dec. 1, 1898.	From county school fund.	Poll tax, fines, etc.	Total.	Teachers' wages.	Rent, fuel, etc.	School houses and grounds.	Total.	
Carlsbad	1	....	5	5	122	105	217	59	56	115	166	124	290	5	6	....	$2,457.28	$4,188.71	$6,645.99	$2,490.00	$80.40	[1]$1,620.84	$6,645.99	$2,455.25
Mexican	1	1	....	1	22	17	39	12	6	18	30	26	56	1	6									
Colored	1	1	....	1	7	3	10	5	2	7	10	5	15	1	6									
1	1	....	1	1	16	11	27	12	8	20	40	29	69	1	7	$262.54	390.18	843.11	1,495.83	200.00	249.72	....	1,495.83	1,096.11
2	2	1	....	1	12	16	28	5	7	12	20	12	32	1	7	133.35	180.96	110.31	424.62	315.00	18.18	25.00	424.62	66.44
3 and 4	2	1	....	1	....	....	....	....	....	....	19	30	49	1	6	58.63	277.08	....	335.71	....	....	....	335.71	335.71
5	1	1	....	1	....	....	....	....	....	....	13	9	22	1	6	73.00	124.41	....	197.41	140.00	....	....	197.41	54.41
6	1	....	....	....	....	....	....	....	....	....	14	9	23	....	....	21.30	130.06	....	151.36	....	....	....	151.63	151.63
7	3	1	....	1	20	19	39	13	10	23	37	26	63	1	9	12.29	356.24	....	368.53	100.00	8.70	....	368.53	259.83
8	4	1	....	1	29	13	42	18	7	25	37	22	59	1	6	34.42	333.65	....	368.07	120.00	10.00	....	368.07	238.07
9	4	1	....	1	20	18	38	16	14	30	25	27	52	1	6	38.02	294.06	....	362.08	100.00	....	....	362.08	262.08
10	1	....	1	1	19	16	35	13	10	23	61	42	103	1	9	607.35	582.45	228.69	1,418.49	300.00	35.73	50.00	1,418.49	1,032.76
11	2	....	1	1	9	11	20	8	10	18	13	16	29	1	6¼	127.48	163.99	411.07	702.54	217.00	28.56	100.00	702.54	356.98
12	3	1	....	1	8	5	13	5	4	9	23	13	36	1	6	9.82	203.58	35.01	248.41	....	28.09	....	248.41	220.32
13	1	....	1	1	20	13	33	11	6	17	28	13	41	1	7	13.95	231.86	13.50	259.31	140.00	7.08	....	259.31	112.23
Total (16)	28	9	9	18	294	247	541	117	140	317	536	408	939	18	93¼	1,422.15	5,725.80	5,830.40	12,978.35	4,122.00	466.46	1,795.34	5,783.80	7,194.55

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[1] Interest on bonds, $1,150.

GUADALUPE COUNTY.

District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of 5 and 21 years.			Schools.	Months taught.	Receipts.			Expenditures.	On hand.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Dec. 1, 1898.	From county school fund.	Total.	Teachers' wages.	
1	1	1	......	1	31	36	67	25	25	50	52	62	114	1	3	$0.90	$38.31	$39.21	$56.50	....
2	2	1	1	2	64	33	97	55	28	83	102	98	200	2	7	68.47	158.87	227.84	217.50	$9.84
3	3	1	......	1	35	16	51	30	14	44	37	32	69	1	3	4.00	34.48	38.48	78.00	....
4	4	1	......	1	59	25	84	39	16	55	89	73	162	1	3	16.17	93.62	109.79	210.00	....
7	5, 6	......	......	......	......	......	......	......	......	......	35	26	61	......	......	16.00	29.21	45.21	....	41.21
8	7	2	......	2	43	16	59	35	12	47	75	50	125	2	6	....	81.26	81.26	168.00	....
9	8	1	......	1	18	6	24	15	4	19	27	25	52	1	3	....	24.89	24.89	90.00	....
11	9	1	1	2	37	19	56	29	15	44	63	50	113	2	4	414.21	54.09	468.30	210.00	258.30
12	11	1	......	1	36	11	47	30	10	40	135	115	250	1	3	....	80.44	80.44	75.00	5.44
13	12	......	......	......	......	......	......	......	......	......	24	20	44	......	......	15.40	21.06	36.46	....	36.46
14	12	1	......	1	35	......	35	31	......	31	32	28	60	1	3	3.31	44.07	47.38	120.00	....
15	16	1	......	1	35	10	45	28	8	36	37	35	72	1	3	6.55	50.27	56.82	55.50	1.32
16	13	1	......	1	12	14	26	8	10	18	18	19	37	1	3	99.74	50.00	149.74	135.00	14.74
17	......	......	......	......	......	......	......	......	......	......	33	30	63	......	......	78.87	45.82	124.69	....	124.69
18	......	......	......	......	......	......	......	......	......	......	22	22	44	......	......	79.89	18.16	98.05	....	98.05
19	......	......	......	......	......	......	......	......	......	......	37	35	72	......	......	41.56	34.47	76.03	....	76.03
Total (16)	15	12	2	14	405	186	591	325	142	467	818	720	1,538	14	41	845.07	889.02	1,734.09	1,415.50	666.08

District schools in New Mexico—Continued.

GRANT COUNTY.

District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of 5 and 21 years.			Schools.	Months taught.	Receipts.				Expenditures.				On hand.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Dec. 1, 1898.	From county school fund.	Poll tax, fines, etc.	Total.	Teachers' wages.	Rent, fuel, etc.	School houses and grounds.	Total.	
1	1	1	1	2	60	42	102	29	20	49	101	103	204	1	11	$468.70	$2,298.70	$89.10	$2,856.50	$1,300.00	$148.90	....	$1,448.90	$1,407.60
2	1	....	1	1	14	16	30	10	15	25	16	20	36	1	7	132.42	395.60	6.00	434.02	350.00	27.65	....	377.65	56.37
3	2	1	2	3	83	49	132	49	36	85	195	128	323	1	10	46.37	2,299.24	86.00	2,431.61	1,900.00	114.65	$75.00	2,089.65	341.96
4	3	....	5	5	....	....	....	....	....	....	400	369	769	1	....	....	8,262.96	....	8,262.96	....	....	....	....	8,262.95
5	4	....	....	....	....	....	....	....	....	....	31	29	60	1	....	....	858.94	....	858.94	....	....	....	....	858.94
6	4	....	1	1	10	14	24	5	7	12	26	20	46	1	5	151.70	426.78	....	578.84	250.00	15.75	....	265.75	312.73
7	5	....	1	1	42	42	84	40	36	76	74	64	138	1	3	754.79	1,552.68	58.00	2,365.47	180.00	58.00	....	238.00	2,127.47
8	6	1	....	1	8	13	21	5	7	12	22	21	43	1	5	225.81	482.95	46.32	755.08	240.00	9.00	....	249.00	506.08
9	7	1	....	1	8	6	14	5	3	8	20	27	47	1	4	130.90	435.85	4.00	570.75	180.00	15.16	40.00	235.16	335.59
10	7	1	....	1	8	7	15	3	2	5	35	18	53	1	2	625.28	800.28	....	1,425.56	90.00	....	....	90.00	1,835.56
11	8	....	1	1	20	17	37	10	9	19	53	46	99	1	5	232.58	824.60	40.00	1,097.18	800.00	6.05	....	806.05	791.18
12	10	....	....	....	....	....	....	....	....	....	8	6	14	1	....	....	42.00	....	42.00	....	....	....	....	42.00
13	11	2	4	6	46	45	91	27	30	57	280	229	509	1	6	....	5,851.60	98.00	7,449.60	4,583.50	233.58	848.85	5,660.93	1,788.67
14	11	....	1	1	4	5	9	2	4	6	24	12	36	1	4	181.76	437.49	....	619.25	160.00	....	....	160.00	459.25
15	12	....	1	1	18	6	24	11	5	16	33	38	71	1	3	246.62	671.48	....	918.10	135.00	12.15	....	147.15	770.95
16	12	1	....	1	3	4	7	2	4	6	15	8	23	1	3	58.67	196.11	....	254.78	135.00	....	....	135.00	119.78
17	13	1	....	1	19	8	27	17	16	33	40	44	84	1	7	507.07	1,186.06	84.35	1,777.48	385.00	84.35	....	469.35	1,308.18
18	14	1	....	1	22	29	51	8	12	20	24	32	56	1	9	220.83	693.75	56.00	970.58	450.00	....	....	450.00	520.58
19	14	1	....	1	14	16	30	7	8	15	16	20	36	1	3	109.58	383.88	13.50	506.96	200.00	....	....	200.00	306.96
20	16	....	....	....	....	....	....	....	....	....	8	16	24	1	....	....	92.17	....	92.17	....	....	....	....	92.17
21	17	....	....	....	....	....	....	....	....	....	12	8	20	1	....	....	54.37	....	54.37	....	....	....	....	54.37
22	19	....	....	....	....	....	....	....	....	....	9	5	14	1	....	....	87.25	....	87.25	....	....	....	....	87.25
23	20	....	2	2	47	35	82	29	22	51	58	57	115	1	6	....	1,259.33	81.91	1,341.24	960.00	26.10	111.47	1,067.57	253.67
24	21	1	....	1	8	6	14	5	4	9	19	15	34	1	2	78.28	281.60	....	359.88	100.00	....	....	100.00	259.88
25	23	....	1	1	16	15	31	8	7	15	50	30	80	1	7	252.69	918.32	25.00	1,191.01	420.00	24.45	113.44	557.89	633.12
26	23	1	....	1	9	8	17	3	6	9	32	30	62	1	8½	136.44	569.92	....	706.36	175.00	....	....	175.00	531.36
27	23	....	1	1	14	14	28	6	9	15	31	24	55	1	4	197.03	587.33	....	784.36	180.00	19.90	....	199.90	584.46
28	24	....	1	1	11	17	28	8	9	17	26	32	58	1	5	25.47	661.33	....	686.80	250.00	....	....	250.00	436.80
Total (28)	24	12	26	38	484	414	898	289	271	560	1,658	1,451	3,109	28	113½	4,783.09	34,102.56	688.18	39,573.83	12,913.50	795.69	1,183.76	14,892.95	24,680.83

LINCOLN COUNTY.

District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of of 5 and 21 years.			Schools.	Months taught.	Receipts.				Expenditures.				On hand Oct. 1, 1899.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance July 6, 1898.	From county school fund.	Poll tax, fines, etc.	Total.	Teachers' wages.	Rent, fuel, etc.	School houses and grounds.	Total.	
1	1	1	1	2	38	46	84	25	31	56	129	128	257	2	8	$357.48	$276.77	$33.33	$667.58	....	$48.16	$6.00	$54.16	$612.82
2	2	1	....	1	No school.						39	44	83	1	....	140.30	120.20	....	242.50	....	....	....	....	....
3	10	1	1	2	No school.						16	11	27	2	....	53.07	21.72	1.81	76.10	....	....	....	....	....
4	4	1	1	2	School in session.						52	46	98	1	....	203.57	73.26	....	276.83	....	....	175.25	175.25	101.58
5	10	1	1	2	No school.						16	19	35	1	....	33.71	28.95	1.71	64.87	....	....	....	....	....
6	6	1	....	1	No school.						29	20	49	1	....	54.18	61.50	....	115.68	$30.00	1.25	....	31.25	84.43
8	8	1	1	2	School in session.						107	107	114	1	....	199.58	161.00	32.00	392.58	....	6.50	....	6.50	386.08
11	11	1	....	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
12	12	1	....	1	School in session.						42	28	70	1	....	70.74	42.52	....	113.26	....	....	2.50	2.50	110.76
14	5	1	1	2	School in session.						38	28	66	1	....	98.80	51.56	....	150.36	....	....	7.55	7.55	142.81
15	12	1	....	1	School in session.						13	11	24	1	....	50.82	16.32	....	67.15	....	....	....	....	....
16	12	1	1	2	No school.						24	19	43	1	....	53.48	39.80	....	93.28	....	....	....	....	....
18	1	1	....	1	No school.						28	26	54	1	....	102.00	49.65	....	152.51	....	....	....	....	....
20	2	1	1	2	24	18	42	18	15	33	42	42	84	1	2	142.78	66.02	....	208.80	70.20	2.00	....	72.00	136.80
27	8	1	1	2	15	11	26	9	7	16	25	17	42	1	2	48.92	25.33	8.00	82.25	80.00	....	....	80.00	2.25
28	9	....	1	1	School in session.						66	42	108	1	....	12.22	32.57	....	44.79	....	....	....	....	44.79
32	8	....	....	....	No report—no school.						....	....	....	....	....	....	....	....	....	....	....	....	....	....
33	4	....	....	....	No report—no school.						26	26	52	....	....	73.89	52.46	....	126.35	....	....	....	....	126.35
35	10	....	....	....	No report—no school.						14	14	28	....	....	6.01	22.62	1.34	29.98	....	....	....	....	29.98
42	10	....	....	....	No report—no school.						24	20	44	....	....	73.16	38.89	2.31	114.36	....	....	....	....	114.36
43	7	....	....	....	No report—no school.						21	17	38	....	....	11.01	27.18	....	38.14	....	....	....	....	38.14
Total (21)	21	15	10	25	....	....	....	....	....	105	751	565	1,316	19	12	1,785.58	1,190.27	80.00	3,055.85	180.00	58.51	191.30	429.21	2,626.04

District schools in New Mexico—Continued.

MORA COUNTY.

District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of 5 and 21 years.			Schools.	Months taught.	Receipts.				Expenditures.			On hand.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Dec. 1, 1898.	From county school fund.	Poll tax, fines, etc.	Total.	Teachers' wages.	Rent, fuel, etc.	Total.	
1	1	2	1	3	63	46	109	52	31	83	185	155	226	3	6	$41.60	$174.02	$644.00	$859.62	$510.00	$82.00	$592.00	$267.62
2	2	1	....	1	51	39	90	30	24	54	105	94	199	1	3	16.00	153.23	144.00	313.23	120.00	29.10	149.10	222.33
3	3	1	....	1	44	41	85	27	22	49	49	53	102	1	3	21.05	78.54	125.00	224.59	180.00	25.00	205.00	19.59
4	4	1	....	1	18	17	35	14	10	24	28	23	51	1	3	11.17	59.27	27.00	97.44	90.00	7.00	97.00	.44
5	5	1	1	2	54	51	105	39	42	81	81	71	152	2	6	8.15	117.04	191.10	389.29	180.00	45.00	225.00	164.29
6	6	1	....	1	36	54	90	24	39	63	75	62	137	1	3	6.40	105.49	130.00	241.89	90.00	15.00	105.00	136.89
7	7	1	....	1	23	20	43	17	17	34	42	34	76	1	3	2.15	58.52	35.00	95.67	75.00	13.00	88.00	7.67
9	9	1	....	1	44	31	75	27	51	58	39	64	103	1	4	9.27	79.31	46.25	134.83	120.00	14.00	134.00	.83
10	10	1	....	1	29	27	56	20	22	42	37	51	88	1	3	11.50	67.76	125.00	204.26	120.00	15.00	135.00	69.26
11	11	....	1	1	32	37	79	26	26	52	48	57	105	1	6	150.75	80.85	270.00	501.06	300.00	48.00	348.00	153.60
12	12	1	1	2	84	72	156	71	77	148	114	116	228	2	10	175.00	175.56	876.00	1,226.56	800.00	150.00	950.00	276.56
13	13	1	....	1	19	22	41	11	16	27	35	20	55	1	3	....	42.35	20.00	62.35	60.00	....	60.00	2.33
14	14	1	....	1	30	35	65	20	25	45	30	35	65	1	3	4.50	50.05	30.00	84.55	75.00	4.00	79.00	5.55
15	15	1	....	1	27	20	47	20	15	35	27	20	47	1	3	2.40	64.68	32.00	99.08	60.00	10.00	70.00	29.08
16	16	1	....	1	20	25	45	14	19	33	20	25	45	1	3	4.50	57.75	40.00	102.25	75.00	12.00	87.00	15.25
19	19	1	....	1	35	50	85	20	30	50	73	60	133	1	3	7.25	102.41	130.00	239.66	90.00	16.00	106.00	133.66
20	20	1	....	1	30	35	65	20	27	47	61	50	111	1	3	11.00	85.47	35.00	131.47	75.00	10.00	85.00	46.47
23	23	1	....	1	15	25	40	10	20	30	25	31	56	1	3	....	43.12	30.00	73.12	60.00	6.00	66.00	7.12
24	18	1	....	1	40	35	75	30	25	55	50	70	120	1	3	9.40	92.40	20.00	121.40	60.00	10.00	70.00	51.40
25	25	1	....	1	20	15	35	15	10	25	35	36	71	1	3	5.40	54.67	20.00	80.07	60.00	5.00	65.00	15.07
26	....	1	....	1	30	20	50	20	12	32	45	42	87	1	3	6.50	66.99	35.00	108.49	60.00	12.00	72.00	36.49
27	....	1	....	1	28	20	48	18	15	33	88	38	76	1	3	4.20	58.52	25.00	87.72	60.00	6.00	66.00	21.72
29	21	1	....	1	30	50	80	15	25	40	75	55	130	1	3	9.25	100.10	30.00	139.35	75.00	10.00	85.00	54.35
30	24	1	....	1	23	25	48	15	17	32	49	30	79	1	3	12.50	60.83	40.00	113.33	75.00	10.00	85.00	28.33
33	17	1	....	1	28	27	55	16	18	34	44	35	79	1	3	8.25	60.83	25.00	94.08	75.00	6.00	81.00	13.08
39	26	1	....	1	15	18	38	10	14	24	25	34	59	1	3	3.80	45.43	30.00	79.23	60.00	6.00	66.00	13.23
41	....	1	....	1	50	30	80	32	23	55	72	48	120	1	3	4.50	92.40	130.00	226.90	120.00	18.00	138.00	88.90
47	8	1	....	1	40	35	75	30	28	58	54	55	109	1	3	6.80	83.93	150.00	240.73	120.00	20.00	140.00	100.78
22	....	1	....	1	50	30	80	40	25	65	80	52	182	1	3	9.50	101.64	75.00	186.14	150.00	12.00	162.00	24.14
Total (29)	25	29	4	33	1,008	982	1,990	684	705	1,389	1,651	1,619	3,370	33	109	563.79	2,413.16	3,510.85	6,487.30	3,090.00	614.10	3,704.10	2,783.20

OTERO COUNTY.

District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of 5 and 21 years.			Schools.	Months taught.	Receipts.			
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Dec. 1, 1898.	From county school fund.	Poll tax, fines, etc.	Total.
1	......	......	......	......	......	......	......	......	......	......	70	44	114	......	......	......	$133.03	$387.11	$520.14
2	......	......	......	......	......	......	......	......	......	......	50	59	109	......	......	......	127.20	110.98	238.18
3	......	......	......	......	......	......	......	......	......	......	25	20	45	......	......	......	52.51	......	52.51
4	......	......	......	......	......	......	......	......	......	......	105	105	210	......	......	......	238.50	......	238.50
5	......	......	......	......	......	......	......	......	......	......	30	47	77	......	......	......	89.85	67.52	157.87
6	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	42.71	42.71
7	......	......	......	......	......	......	......	......	......	......	20	35	55	......	......	......	64.18	......	64.18
8	......	......	......	......	......	......	......	......	......	......	21	20	41	......	......	......	47.84	30.10	77.94
9	......	......	......	......	......	......	......	......	......	......	75	75	150	......	......	......	175.55	......	175.55
10	......	......	......	......	......	......	......	......	......	......	22	26	48	......	......	......	56.01	......	56.01
11	......	......	......	......	......	......	......	......	......	......	23	18	41	......	......	......	47.84	......	47.84
12	......	......	......	......	......	......	......	......	......	......	30	25	55	......	......	......	64.18	......	64.18
13	......	......	......	......	......	......	......	......	......	......	32	24	56	......	......	......	65.35	......	65.35
14	......	......	......	......	......	......	......	......	......	......	16	16	32	......	......	......	37.34	......	37.34
15	......	......	......	......	......	......	......	......	......	......	20	17	37	......	......	......	43.17	......	43.17
Total (15)	......	......	......	......	......	......	......	......	......	......	539	581	1,070	......	......	......	1,242.55	638.42	1,880.79

District schools in New Mexico—Continued.

RIO ARRIBA COUNTY.

District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of 5 and 21 years.			Schools.	Months taught.	Receipts.				Expenditures.			On hand.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Oct. 1, 1898.	From county school fund.	Poll tax, fines, etc.	Total.	Teachers' wages.	Rent, fuel, etc.	Total.	
1	1	....	....	....	....	....	....	....	....	....	90	60	150	....	....	$47.51	$66.50	$36.36	$150.37	....	....	....	$150.37
2	2	1	....	1	22	5	27	22	5	27	100	55	155	1	3	....	13.69	117.60	131.29	$87.00	$40.00	$127.00	4.29
3	3	1	....	1	....	14	14	....	14	14	50	12	62	1	3	1.20	38.10	....	39.30	25.00	17.00	42.00	....
4	4	1	....	1	27	6	33	20	5	25	131	116	247	1	3	.50	46.65	....	47.15	45.00	7.00	52.00	....
5	5	1	....	1	40	7	47	31	6	37	80	23	103	1	3	.08	53.20	....	53.28	60.00	20.65	80.65	....
6	6	1	....	1	28	16	44	28	16	44	113	113	226	1	3	....	....	....	....	60.00	18.36	78.56	....
7	7	1	....	1	26	13	39	26	13	39	70	30	100	1	3	2.28	46.55	....	48.83	40.00	24.00	46.00	....
8	8	2	....	2	34	29	63	34	29	63	68	73	141	1	4	....	39.47	....	39.47	100.00	48.00	148.00	....
9	9	....	....	....	....	....	....	....	....	....	67	57	124	....	....	64.50	53.50	56.20	174.20	....	....	....	174.20
10	10	2	....	2	46	17	63	38	14	52	88	46	134	1	3	52.88	86.45	....	139.33	180.00	10.00	190.00	....
11	11	1	....	1	28	16	44	19	10	29	100	53	153	1	3	.98	46.55	36.00	83.53	87.99	30.00	117.99	....
12	12	1	....	1	22	13	35	22	13	35	70	24	94	1	3	.77	79.83	....	80.60	85.00	....	85.00	....
13	13	....	....	....	....	....	....	....	....	....	81	21	102	....	....	47.55	33.25	90.86	171.66	....	....	....	171.66
14	14	....	....	....	....	....	....	....	....	....	113	33	156	....	....	69.78	86.55	70.62	186.96	....	....	....	186.96
15	15	....	....	....	....	....	....	....	....	....	101	52	153	....	....	46.52	39.90	96.52	182.94	....	....	....	182.94
16	16	1	....	1	19	4	23	14	4	18	40	50	90	1	3	58.63	39.90	106.40	204.93	35.00	8.00	43.00	161.96
17	17	2	1	3	70	30	100	68	25	93	115	98	213	1	3	76.47	79.80	269.02	425.29	293.00	41.60	334.60	....
18	18	1	1	2	47	37	84	32	30	62	120	90	210	1	4	65.09	73.15	293.84	432.08	340.00	78.98	418.98	....
19	19	....	1	1	30	25	55	30	25	50	90	35	120	1	3	....	17.25	173.34	190.59	131.80	....	137.80	....
20	20	1	....	1	20	15	35	20	13	33	50	35	85	1	3	....	23.25	94.99	118.24	100.00	34.01	134.01	....
21	21	1	....	1	22	18	40	21	18	39	55	25	80	1	3	....	100.00	1.54	101.54	200.00	50.00	250.00	....
22	....	....	....	....	....	....	....	....	....	....	61	35	96	....	....	38.15	33.25	....	71.40	....	....	....	71.40
23	22	1	....	1	19	19	38	19	15	34	50	55	105	1	3	....	....	3.29	3.29	45.39	33.13½	78.52½	....
24	23	1	....	1	11	7	18	11	7	18	55	65	120	1	3	17.58	53.20	48.24	119.02	70.00	27.50	97.50	11.52
25	24	1	....	1	7	15	22	6	14	20	30	40	70	1	3	....	26.60	....	26.60	29.00	8.60	37.60	....
26	25	1	....	1	10	15	25	10	15	25	25	31	66	1	3	....	39.90	.40	40.30	43.00	13.00	56.00	....
27	26	2	....	2	11	22	33	11	22	33	55	52	107	1	3	13.90	33.25	94.55	141.70	210.00	34.00	244.00	....
28	27	2	....	2	46	18	64	40	14	54	50	50	100	1	4	202.77	53.20	169.65	425.62	280.00	18.13	298.13	....
29	28	....	1	1	20	10	30	20	9	29	31	28	59	1	3	29.13	33.25	62.45	124.83	75.00	8.00	83.00	....
30	29	1	....	1	5	10	15	4	10	14	10	15	25	1	3	....	13.30	7.00	20.30	16.00	6.49	22.00	....
31	30	....	....	....	....	....	....	....	....	....	35	45	80	....	....	89.56	26.60	222.88	339.04	....	....	....	339.04
32	31	....	....	....	....	....	....	....	....	....	30	30	60	....	....	30.02	26.60	17.62	74.24	....	....	....	74.24
33	32	....	1	1	26	14	40	20	14	34	55	65	120	1	3	....	66.50	6.48	12.98	44.00	25.50	69.50	3.48
34	33	1	....	1	15	3	18	15	3	18	60	31	91	1	3	....	26.60	4.86	31.46	32.00	18.00	50.00	....
35	34	1	....	1	25	7	32	25	7	32	40	27	67	1	3	16.46	39.90	11.46	67.82	32.00	10.00	42.00	25.82
36	35	1	....	1	10	8	18	7	3	10	50	10	60	1	3	13.00	33.25	12.00	58.25	21.00	13.50	34.50	58.25

37	36	1	....	1	17	5	22	17	5	22	60	30	90	1	3	....	39.90	1.72	41.62	33.00	12.00	45.00	23.75
38	37	....	....	....	......	....	......	....	....	......	55	39	94	....	....	23.73	19.95	18.73	62.41	....	....	....	62.41
39	38	2	....	2	44	20	64	44	20	64	51	75	126	1	3	331.92	66.50	356.17	654.59	140.00	....	140.00	....
40	39	....	....	....	......	....	......	....	....	......	60	43	103	....	....	39.27	26.60	39.27	105.14	....	....	....	105.14
41	40	1	....	1	12	6	18	12	6	18	35	25	60	1	3	....	46.57	46.57	93.14	48.00	18.95	66.95	26.19
42	41	....	....	....	......	....	......	....	....	......	......	......	......	....	....	....	....	....	....	....	....	....	....
43	42	....	....	....	......	....	......	....	....	......	43	31	74	....	....	47.72	13.30	....	61.02	....	....	....	61.02
Total (43)	42	34	5	39	1,048	439	1,488	697	404	1,101	1,150	1,874	3,024	31	97	1,327.96	1,741.46	2,566.36	5,636.05	2,994.18	673.40½	3,667.58½	1,968.46

SAN JUAN COUNTY.

District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of 5 and 21 years.			Schools.	Months taught.	Receipts.				Expenditures.			On hand.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Dec. 1, 1898.	From county school fund.	Poll tax, fines, etc.	Total.	Teachers' wages.	Rent, fuel, etc.	Total.	
2	2	2	....	2	35	19	54	26.6	17	43.6	42	27	69	2	3	$33.48	$268.45	$17.47	$369.40	$272.01	$75.57	$347.58	$21.82
3	3	....	....	....	....	....	....	......	......	......	14	12	26	....	....	8.85	59.77	....	68.62	....	....	....	68.62
4	4	1	....	1	....	....	....	......	......	......	45	33	78	1	3	40.70	179.28	28.90	248.88	75.00	....	75.00	173.88
5	5	....	2	2	49	49	98	30.3	35.5	65.8	63	63	127	2	5	.32	490.17	5.28	495.77	368.05	123.11	491.16	4.61
6	6	1	....	1	5	10	15	......	......	......	21	23	44	1	3	2.16	133.78	5.00	140.94	50.35	9.00	59.35	81.09
7	7	1	....	1	12	2	14	9.2	2	11.3	56	48	104	1	3	3.08	239.05	41.10	313.23	89.00	....	89.00	224.23
8	5	....	1	1	17	21	38	8.5	10.7	19.2	17	21	38	1	4	74.21	178.55	13.61	266.37	263.63	18.20	281.83	15.46
10	10	....	1	1	....	....	....	......	......	......	13	14	27	1	3	....	62.07	7.68	69.75	40.00	14.03	54.03	15.72
11	3	....	1	1	15	10	25	12.7	9.4	22.1	28	30	58	1	3	59.17	194.35	5.00	258.52	135.00	....	135.00	123.52
12	10	1	....	1	14	10	24	7	6.3	13.3	13	14	27	1	4	16.87	62.67	3.84	82.88	78.14	....	78.14	4.74
13	7	....	....	....	....	....	....	......	......	......	....	....	....	....	....	....	....	....	....	....	....	....	....
14	8	....	1	1	24	15	39	18	9	27	44	29	73	1	3	23.85	234.67	....	258.52	193.75	....	193.75	64.77
15	9	1	....	1	14	10	24	14	10	24	32	20	52	1	3	33.39	163.12	24.96	221.47	105.00	35.05	140.35	81.42
16	2	....	1	1	20	16	36	14.5	11.2	25.7	32	20	52	1	5	50.49	138.41	5.00	193.90	139.99	10.75	150.74	43.16
17	7	....	....	....	....	....	....	......	......	......	....	....	....	....	....	2.65	....	....	2.65	....	....	....	2.65
18	3	1	....	1	....	....	....	......	......	......	24	16	40	1	4	13.77	132.04	12.48	....	95.25	....	95.25	68.04
19	1	....	....	....	....	....	....	......	......	......	....	....	....	....	....	33.51	....	....	33.51	....	....	....	33.51
20	4	....	....	....	....	....	....	......	......	......	24	13	37	....	....	36.55	58.06	.86	122.47	....	....	....	122.47
21	4	....	1	1	....	....	....	......	......	......	15	20	35	1	3	10.51	83.94	....	94.45	60.00	5.00	65.00	29.45
22	5	....	....	....	....	....	....	......	......	......	12	8	20	....	....	15.80	45.98	....	61.78	....	....	....	61.78
Total (20)	20	8	8	16	205	162	367	140.9	110.9	251.6	495	412	907	16	49	538.86	2,751.36	171.18	3,461.40	1,955.67	290.71	2,246.88	1,215.02

District schools in New Mexico—Continued.

SAN MIGUEL COUNTY.

District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of 5 and 21 years.			Schools.	Months taught.	Receipts.				Expenditures.				On hand.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Dec. 1, 1898.	From county school fund.	Poll tax, fines, etc.	Total.	Teachers' wages.	Rent, fuel, etc.	School-houses and grounds.	Total.	
1	5 64	2	1	3	119	73	192	45	42	87	279	241	520	1	8¾	$360.94	$753.50	$448.00	$1,562.44	$998.50	$172.20	....	$1,170.70	$391.74
2	29	6	6	12	318	317	635	224	224	448	587	549	1,084	3	9	....	1,984.28	....	....	....	....	....	....	....
3	33	1	....	1	34	23	57	18	12	30	55	46	101	1	3	52.47	145.45	24.15	222.07	50.00	5.05	....	55.05	167.02
4	26	1	1	2	79	57	136	38	27	65	191	140	331	1	9	914.72	533.45	704.00	2,152.17	885.85	214.04	$198.50	1,298.39	853.78
5	1	....	2	2	72	43	115	59	43	102	120	97	217	1	6	197.76	310.65	96.67	605.08	583.60	....	....	583.60	21.48
6	2	1	1	2	58	54	112	32	27	59	130	108	238	2	5½	274.74	368.10	64.00	706.84	224.15	38.25	....	262.40	444.44
7	16	....	1	1	18	20	38	8	12	20	44	45	89	1	3	23.34	123.55	9.00	155.89	60.00	9.75	....	69.75	86.14
8	32	1	....	1	31	5	36	20	2	22	68	45	113	1	4	.88	159.35	....	160.23	58.65	....	....	58.65	101.58
9	14	1	....	1	19	6	25	5	6	11	56	48	104	1	3½	50.05	151.30	64.00	265.35	90.00	20.00	....	110.00	155.35
10	7	....	1	1	32	16	48	15	13	28	57	25	82	1	5	116.52	115.90	121.47	353.89	136.45	29.02	....	165.47	188.42
11	38	1	....	1	40	18	58	23	10	33	47	40	87	1	4	90.67	126.65	....	217.32	90.67	....	....	90.67	126.65
12	13	1	....	1	4	10	14	2	5	7	42	32	74	1	3	96.85	106.30	....	203.15	56.00	4.80	....	60.80	142.35
13	23	1	....	1	53	30	83	30	18	48	80	69	149	1	4	123.41	210.75	80.00	414.16	59.50	....	....	83.00	331.16
14	31	1	....	1	43	9	52	23	2	25	55	34	89	1	5	144.95	136.05	32.00	313.00	96.00	41.65	....	137.65	175.35
15	6	1	....	1	9	7	16	9	7	16	23	30	53	1	3	4.01	65.85	....	70.86	21.51	....	....	21.51	49.85
16	20	1	....	1	16	3	19	12	1	13	31	33	64	1	5	91.15	87.30	....	178.45	36.00	20.75	....	56.15	122.30
17	36	1	....	1	5	11	16	5	11	16	30	21	51	1	3	16.39	71.45	....	78.84	35.50	....	....	35.50	52.34
18	24	1	....	1	25	5	30	15	5	20	70	48	118	1	3	157.07	181.10	32.00	370.17	72.00	32.00	....	104.00	266.17
19	34	....	....	....	....	....	....	....	....	....	12	11	23	....	....	15.12	43.05	....	58.17	....	3.70	....	3.70	54.47
20	10	1	1	2	49	40	89	30	29	59	67	64	131	2	3	36.98	180.95	122.00	339.93	66.50	15.80	....	82.30	257.63
21	8	1	....	1	45	....	45	37	....	37	107	75	182	1	4	93.22	259.90	59.00	412.12	80.00	9.00	....	89.00	323.12
22	37	....	....	....	....	....	....	....	....	....	30	34	64	....	....	35.31	84.80	....	120.11	....	....	....	....	120.11
23	56	....	....	....	....	....	....	....	....	....	16	15	31	....	....	16.45	46.95	....	63.40	16.45	....	....	16.45	46.95
24	40	....	1	1	....	....	....	....	....	....	35	29	64	....	3	67.04	89.30	48.00	204.34	67.00	14.25	....	81.25	123.09
25	9	1	....	1	35	30	65	12	12	24	61	65	126	1	8	87.56	191.30	64.00	342.76	188.00	33.00	....	221.00	121.76
26	15	1	....	1	30	2	32	14	....	14	45	26	71	1	4	43.42	104.95	16.00	164.37	31.00	3.75	....	34.75	129.62
27	4	1	....	1	31	15	46	12	6	18	65	70	135	1	4	40.57	190.75	....	231.32	45.00	17.50	....	62.50	168.52
28	35	....	....	....	....	....	....	....	....	....	34	26	60	1	....	26.48	83.00	16.00	125.48	38.00	....	....	38.00	87.48
29	31	1	....	1	14	....	14	9	....	9	56	7	63	1	3	45.92	88.85	....	134.77	30.00	8.50	....	38.50	96.27
30	43	1	....	1	27	16	43	11	9	20	36	24	60	1	3	31.73	89.00	....	120.73	63.73	....	....	63.73	57.00
31	62	1	....	1	....	....	....	....	....	....	32	27	59	1	8	8.77	76.55	16.00	101.32	67.00	7.50	....	74.50	26.82
32	11	1	....	1	45	27	72	30	12	42	112	108	220	1	4½	140.41	293.00	32.00	465.41	55.50	23.00	86.00	164.50	300.91
33	4	1	....	1	9	12	21	9	12	21	17	16	33	1	3	26.58	52.35	....	78.88	40.50	5.10	....	45.60	33.28
34	35	....	....	....	....	....	....	....	....	....	31	29	60	....	....	.80	89.00	9.00	99.80	....	8.00	....	8.00	91.80
35	44	1	....	1	27	16	43	27	16	43	35	32	67	1	3	36.25	97.15	....	133.40	50.00	11.25	....	61.25	72.15
36	22	....	1	1	19	9	28	19	9	28	56	40	96	1	5	105.40	180.20	....	285.60	86.50	5.00	....	98.50	142.10

37	6	1	....	1	14	12	26	14	12	26	....	....	....	1	3	7.45	17.50	....	24.95	24.95	....	....	24.95	....
38	28	1	....	1	13	4	17	13	4	17	55	58	108	1	3¼	90.69	140.60	12.00	243.29	97.50	7.40	....	104.90	188.39
39	41	....	....	....	....	....	....	....	....	....	19	8	27	....	....	....	25.65	....	25.65	....	....	....	....	25.65
40	12	1	....	1	36	19	55	36	19	55	65	51	116	1	3	78.08	168.70	32.00	278.78	64.65	18.50	....	83.15	195.63
41	31	1	1	2	21	14	35	21	14	35	43	41	84	1	4	58.96	114.80	....	168.75	29.00	13.25	....	42.25	126.50
43	18	1	....	1	14	8	22	14	8	22	24	14	38	1	5	133.62	74.10	....	207.72	120.25	12.00	....	182.25	75.47
44	44	1	....	1	13	9	22	13	9	22	21	21	42	1	3	34.53	60.90	6.25	101.68	22.50	5.50	....	28.00	73.68
45	25	1	....	1	24	7	31	....	....	....	37	33	70	1	3	74.13	89.50	....	163.63	52.50	9.50	....	62.00	101.63
47	36	....	....	....	....	....	....	....	....	....	29	23	52	1	....	42.20	70.90	....	113.10	35.00	2.50	....	37.50	75.60
48	3	1	....	1	....	....	....	....	....	....	49	38	87	1	3	69.48	114.65	10.00	194.13	77.80	20.25	....	98.05	96.08
49	47	....	....	....	....	....	....	....	....	....	10	13	23	....	....	....	42.97	114.72	157.69	105.00	9.99	....	114.99	42.70
50	39	....	1	1	24	20	44	17	16	33	51	40	91	1	4	62.25	121.45	....	183.70	52.50	....	....	52.50	131.20
54	30	1	....	1	17	8	25	10	8	18	29	26	55	1	4	35.70	81.75	....	117.45	46.50	2.50	....	49.00	68.45
62	55	1	....	1	15	10	25	13	8	21	30	47	77	1	4	117.74	106.65	2.40	226.79	95.00	6.70	....	101.70	125.09
63	15	1	....	1	11	9	20	5	4	9	13	22	35	1	3	11.84	54.25	....	66.09	21.50	3.00	....	24.50	41.59
64	51	1	....	1	20	13	33	9	4	13	31	26	57	1	4	7.28	84.65	....	91.93	44.00	7.75	....	51.75	40.18
65	65	1	....	1	13	3	16	10	....	10	36	22	58	1	3	21.25	100.10	13.00	134.35	46.00	9.30	....	55.30	79.05
66	52	....	....	....	....	....	....	....	....	....	16	20	36	....	....	40.23	24.00	....	64.23	....	9.00	....	9.00	55.23
67	45	....	....	....	....	....	....	....	....	....	28	14	42	....	....	15.98	56.90	....	72.88	....	....	....	....	72.88
68	54	....	....	....	....	....	....	....	....	....	....	....	....	....	....	22.56	24.00	....	46.56	....	....	....	....	....
69	56	1	....	1	18	6	24	....	....	....	35	29	64	1	3	25.85	88.30	....	144.15	53.35	....	....	53.35	60.80
71	61	1	....	1	45	22	67	19	7	26	63	52	115	1	4	53.99	183.75	9.00	246.74	106.00	....	....	106.00	140.74
72	55	1	....	1	15	11	26	11	7	18	25	21	46	1	3	80.87	68.20	....	149.07	75.00	....	....	75.00	74.04
73	57	1	....	1	12	9	21	....	....	....	21	26	47	1	3	49.77	69.65	81.00	200.42	60.00	15.75	....	75.75	124.67
75	58	1	....	1	11	9	20	....	....	....	40	26	66	1	5	79.79	100.20	30.05	210.04	94.00	13.30	....	107.30	102.74
76	23	....	....	....	....	....	....	....	....	....	28	23	51	....	....	58.40	76.45	....	134.85	....	....	....	....	134.85
77	63	....	....	....	....	....	....	....	....	....	48	29	77	....	....	64.48	114.65	....	179.49	....	3.00	....	3.00	176.49
79	24	1	....	1	16	8	24	....	....	....	20	14	34	1	3	14.20	45.30	....	59.50	4.00	....	....	4.00	55.50
80	62	1	....	1	10	7	17	2	7	9	....	....	....	1	3	51.78	18.00	....	69.78	48.75	6.55	....	55.30	14.48
81	30	1	....	1	15	7	22	10	7	17	26	19	45	1	3	11.08	69.25	....	80.33	31.50	10.00	....	41.50	38.83
83[1]	65	....	....	....	....	....	....	....	....	....	32	23	64	....	....	....	60.80	....	60.80	....	3.45	....	3.45	57.35
84	57	1	....	1	8	6	14	5	4	9	....	....	....	1	3	16.10	16.00	....	32.10	32.10	....	....	32.10	....
85	45	1	....	1	23	15	38	11	7	18	57	42	99	1	5	105.75	153.55	3.00	262.30	73.00	5.00	30.70	108.70	153.60
87	55	1	....	1	22	13	35	....	....	....	59	54	193	1	5	108.82	159.85	84.00	352.67	139.40	8.15	....	147.55	205.12
88	51	1	....	1	19	16	35	14	10	24	31	17	48	1	3	.03	72.60	....	72.63	23.00	6.40	....	29.40	43.23
89	57	1	....	1	....	....	....	....	....	....	49	28	77	1	3	8.75	95.65	....	104.40	58.70	12.00	....	70.70	33.70
91	44	1	....	1	10	14	24	7	12	19	21	22	43	1	3	21.59	58.85	1.00	81.44	25.00	4.25	....	29.25	52.19
92	54	....	....	....	....	....	....	....	....	....	47	30	77	....	....	80.47	121.15	....	201.62	....	3.00	....	3.00	198.62
93	34	1	....	1	27	29	56	17	15	32	32	31	63	1	3	43.55	86.35	....	129.90	55.00	3.00	....	58.00	71.90
Total (75)	75	60	18	78	1,814	1,187	3,001	1,064	754	1,818	3,982	3,354	7,336	65	138¼	2,359.47	10,073.50	2,455.71	14,888.68	6,285.01	1,006.75	315.20	7,606.96	7,281.72

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[1] New district created May 30, 1899.

District schools in New Mexico—Continued.

SANTA FE COUNTY.

District.	Precinct.	Teachers.			Scholars between the ages of 5 and 21 years.			Average daily attendance.			Enrollment.			Schools.	Months taught.	Receipts.				Expenditures.				On hand.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Oct. 1, 1898.	From county school fund.	Poll tax, fines, etc.	Total.	Teachers' wages.	Rent, fuel, etc.	School-houses and grounds.	Total.	
1	1	1	....	1	66	62	128	18	7	25	34	15	49	1	4	$106.47	$386.80	$3.00	$496.27	$86.00	$33.00	$10.50	$129.50	$366.77
2	2	1	....	1	34	34	68	13	5	18	21	10	31	1	3	60.11	184.15	....	244.26	60.00	27.70	....	87.70	156.56
3	3	1	....	1	159	139	298	34	21	55	46	31	77	1	10	157.73	851.68	....	1,009.41	520.00	28.00	40.00	588.00	421.41
4	4	1	....	1	46	37	83	20	11	31	27	14	41	1	4	77.60	228.60	....	306.20	105.00	22.00	....	127.00	179.20
5	5	1	....	1	43	48	91	11	9	20	15	13	28	1	4	104.95	256.52	39.60	401.07	104.50	20.00	25.00	159.50	241.57
6	6	1	....	1	43	54	97	12	11	23	18	16	34	1	4	98.74	275.87	....	374.61	75.00	37.00	....	112.00	262.61
8	8	2	1	3	152	11	263	64	38	102	72	49	121	3	5	317.73	968.42	....	1,286.15	500.00	28.57	10.00	538.57	747.58
9	9	1	....	1	47	42	89	17	14	31	26	24	50	1	3	92.45	243.61	....	336.06	60.00	27.25	....	87.25	248.81
10	10	....	1	1	18	11	29	6	5	11	9	6	15	1	3	71.84	84.88	....	156.72	90.00	13.00	....	103.00	53.72
11	11	1	....	1	64	59	123	21	16	37	33	28	61	1	5	160.75	416.02	....	576.77	205.45	5.64	....	211.09	365.68
12	12	1	....	1	21	20	41	12	7	19	16	11	27	1	3	47.65	320.06	....	267.71	56.00	13.00	....	69.00	198.71
13	12	1	....	1	21	15	36	13	5	18	15	6	21	1	3	27.99	97.29	13.50	138.78	60.00	7.50	....	67.50	71.28
15	1	1	....	1	91	78	169	29	13	42	49	16	65	1	3	208.42	478.35	....	686.77	88.00	....	....	88.00	598.77
16	1	1	....	1	32	19	51	17	7	24	23	11	34	1	3	53.90	148.47	....	202.37	50.00	7.25	4.00	61.25	141.12
17	20	....	1	1	25	24	49	14	15	29	17	21	38	1	3	110.50	290.53	16.20	417.23	150.00	31.45	....	181.45	235.78
18	15	2	....	2	98	84	182	58	29	87	96	84	180	1	4	95.82	486.25	....	582.07	146.45	41.90	....	188.35	393.72
19	12	1	....	1	33	27	60	16	12	28	12	8	20	1	4	81.87	165.57	....	247.44	82.85	7.25	12.00	102.10	145.34
20	14	1	....	1	65	40	105	30	16	46	39	16	55	1	3	105.65	298.00	....	403.66	91.00	28.19	....	119.19	284.47
21	11	1	....	1	15	15	30	9	5	14	9	7	16	1	3	48.39	89.91	....	138.30	90.00	....	....	90.00	48.30
22	16	3	....	3	144	94	208	61	27	88	80	37	117	3	3	211.92	686.29	....	898.21	255.00	48.60	....	339.60	558.61
23	13	....	1	1	51	20	71	11	7	18	14	10	24	1	4	52.79	178.72	10.80	242.31	107.00	8.00	....	115.00	127.31
25	{4 5}	1	....	1	41	34	75	14	8	22	18	14	32	1	4	64.16	207.31	....	271.47	84.00	22.00	....	106.00	165.47
26	2	1	....	1	22	24	46	15	4	19	18	4	22	1	3	29.87	121.94	....	151.81	36.00	3.00	....	39.00	112.81
27	19	....	2	2	136	134	270	35	34	69	59	75	134	2	5	252.17	1,316.85	368.10	1,937.12	577.50	208.00	....	785.50	1,151.62
28	15	1	....	1	28	21	49	20	7	27	24	9	33	1	3	43.64	133.61	....	177.25	28.00	22.65	....	50.65	126.60
29	9	1	....	1	58	48	106	21	12	33	31	19	50	1	4	59.59	290.93	....	350.52	80.00	38.00	....	118.00	232.52
30	5	1	....	1	26	31	57	14	12	26	18	15	33	1	4	59.88	152.19	11.33	223.40	52.50	10.40	25.75	88.65	134.75
Total (27)	20	27	6	33	2,198	1,995	4,193	605	357	962	839	569	1,408	32	104	2,801.59	9,259.91	462.53	12,523.93	3,840.25	775.35	137.25	4,752.85	7,771.08

SIERRA COUNTY.

District.	Precincts.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of 5 and 21 years.			Schools.	Months taught.	Receipts.				Expenditures.			On hand.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Dec. 1, 1898.	From county school fund.	Poll tax, fines, etc.	Total.	Teachers' wages.	Rent, fuel, etc.	Total.	
1	1	....	1	1	11	6	17	10.3	5.2	15.6	34	32	66	1	5	$231.46	$154.15	$85.98	$471.59	$100.00	$63.53	$163.53	$108.06
2	2	1	2	2	57	28	85	34.5	14.5	49	100	66	166	2	4	41.51	406.70	326.68	774.89	187.50	190.16	377.66	397.23
3	3	1	....	1	31	16	47	16.2	9.3	25.5	44	41	85	1	5	51.36	208.25	128.18	387.79	135.00	44.90	179.90	207.89
4	4	1	....	1	35	22	57	19.5	15.8	35.3	80	65	145	1	6	113.25	355.25	9.90	478.40	318.00	47.75	365.75	112.65
5	5	1	....	1	36	28	64	27.3	20.5	47.8	47	46	93	1	4	85.50	227.85	17.00	330.35	160.00	5.25	165.25	165.15
7	7	1	....	1	8	13	21	6.25	9.4	15.29	81	76	157	1	3	333.19	384.65	51.17	769.01	211.00	31.47	242.47	526.54
8	8	1	....	1	11	10	21	9.5	7.6	17.1	13	12	25	1	3	121.99	61.25	18.00	201.24	70.00	12.55	82.55	118.69
9	9	....	....	1	14	7	21	9.4	6.8	16.2	16	3	19	1	4	81.24	46.55	48.74	176.53	160.00	7.00	167.00	9.53
10	10	....	1	1	7	8	15	2.7	3.2	5.9	17	17	34	1	4	97.92	83.30	50.01	231.23	140.00	10.00	150.00	81.23
11	10	....	....	....	....	....	....	......	......	......	4	5	9	....	....	41.43	20.05	....	61.48	....	....	....	61.48
12	12	....	....	....	....	....	....	......	......	......	40	21	61	....	....	....	100.65	66.66	167.31	....	....	....	167.81
13	1	....	1	1	9	5	14	7.3	4.1	11.4	26	24	50	1	3	26.19	122.50	....	148.69	120.00	....	120.00	28.69
15	15	1	....	1	15	12	27	8.6	6.8	15.4	48	38	86	1	3	165.47	210.70	32.87	409.04	225.00	25.60	250.60	158.44
16	16	....	1	1	18	8	26	10.5	3.4	13.9	31	20	51	1	4	42.07	84.15	117.15	243.37	160.00	46.05	206.05	37.32
17	8	1	....	1	25	20	45	15.4	13.7	29.1	38	28	66	1	4	218.88	161.70	47.60	428.18	160.00	9.35	169.35	258.83
Total (15)	15	8	6	14	277	183	460	238.7	120.4	354.1	619	494	1,113	14	52	1,651.46	2,627.70	999.94	5,279.10	2,146.50	493.61	2,640.11	2,638.99

District schools in New Mexico—Continued.

SOCORRO COUNTY.

District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of 5 and 21 years.			Schools.	Months taught.	Receipts.				Expenditures.				On hand.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Oct. 1, 1898.	From county school fund.	Poll tax, fines, etc.	Total.	Teachers' wages.	Rent, fuel, etc.	Schoolhouses and grounds.	Total.	
1-24	1 24	....	....	....	....	....	....	....	....	....	287	239	526	....	....	$464.30	$787.70	$1,658.30	$2,905.30	$995.00	....	$1,032.89	$2,905.30	$607.41
3	8	1	....	1	20	26	46	10	14	24	41	52	93	1	6	188.45	172.05	16.00	326.50	183.00	$18.85	20.75	326.50	103.90
4	4	1	....	1	23	16	39	12	14	26	44	30	74	1	3	19.21	136.90	5.40	161.51	24.00	....	1.90	161.51	135.61
5	5	1	....	1	40	35	75	22	30	52	60	59	119	1	7	205.52	221.15	64.67	491.34	280.00	14.00	17.00	491.34	180.34
6	2	1	....	1	58	42	100	28	25	53	88	81	169	1	7	284.66	332.65	32.00	649.31	255.00	17.50	36.50	649.31	340.31
7	7	....	1	1	60	42	102	42	24	66	98	69	167	1	9	144.51	328.80	162.26	635.57	344.00	88.55	....	635.57	208.02
8	8	....	....	....	....	....	....	....	....	....	23	17	40	....	....	31.93	40.00	....	71.93	....	....	....	71.93	71.93
9	9	1	....	1	42	24	66	25	12	37	53	47	100	1	4	193.83	185.00	59.40	438.23	200.00	39.90	....	438.23	198.33
10	10	....	1	1	15	18	33	12	10	22	20	21	41	1	3	167.35	75.85	40.96	284.16	180.00	....	....	284.16	104.16
11	11	....	1	1	52	65	117	38	31	69	66	74	140	1	8	328.08	265.00	134.03	727.06	480.00	28.05	8.25	727.06	210.76
12	12	....	1	1	43	25	68	33	20	53	50	45	95	1	8	138.58	242.72	226.01	707.31	400.00	154.50	....	707.31	152.81
13	13	1	1	2	51	41	92	31	33	64	109	89	198	2	6	30.07	312.30	291.99	638.36	320.00	....	119.19	638.36	207.17
14	14	....	....	....	....	....	....	....	....	....	29	36	65	....	....	61.13	120.25	197.71	379.09	....	2.00	....	379.09	377.09
15	15	1	....	1	41	20	61	26	13	39	70	65	135	1	4	209.66	261.75	50.00	521.41	200.00	....	29.00	521.41	292.41
16	16	2	....	2	60	58	118	48	41	89	89	68	157	2	7	259.13	261.45	81.30	501.92	280.00	....	18.18	501.92	203.62
17	44	1	....	1	46	32	78	32	18	50	52	41	93	1	3	121.31	149.05	87.08	307.44	105.00	44.25	....	307.44	158.19
18	34	1	....	1	20	18	38	15	13	28	27	25	52	1	8	31.75	96.20	113.34	241.29	130.00	....	....	241.29	111.29
19	43	1	....	1	36	16	52	19	8	27	40	37	77	1	4	137.53	160.45	32.00	329.98	140.00	....	51.25	339.98	138.73
20	3	1	....	1	20	14	34	12	10	22	25	24	49	1	4	64.54	91.65	....	156.19	91.00	....	....	156.19	65.19
21	21	1	....	1	26	19	45	17	11	28	52	47	99	1	4	158.22	173.15	31.00	387.37	140.00	4.00	36.80	327.37	206.57
22	22	....	....	....	....	....	....	....	....	....	25	20	45	....	....	16.10	38.25	....	54.35	....	54.35	....	54.35	....
23	23	....	....	....	....	....	....	....	....	....	24	24	48	....	....	39.45	48.00	22.00	109.45	....	....	....	109.45	109.45
24	14	....	....	....	....	....	....	....	....	....	30	35	65	....	....	....	55.25	24.00	59.25	....	....	....	79.25	79.25
25	25	....	1	1	32	32	64	34	33	67	60	41	101	1	4	119.07	194.85	36.00	349.92	140.00	215.02	....	349.92	164.90
26	26	....	....	....	....	....	....	....	....	....	25	34	59	....	....	138.15	59.00	....	197.15	....	34.00	....	197.15	163.15
27	7	....	1	1	42	37	79	25	18	43	50	57	107	1	4	103.46	199.95	90.40	420.81	200.00	10.00	15.55	420.81	197.26
28	28	....	1	1	60	29	89	15	8	23	79	54	133	1	7	258.08	255.05	32.00	545.13	350.50	....	17.80	545.13	177.33
30	30	1	....	1	26	28	54	18	15	33	36	32	68	1	8	116.67	125.80	....	236.47	90.00	5.00	24.77	236.47	116.70
31	31	1	....	1	17	15	32	15	12	27	32	31	63	1	6	106.54	116.55	....	223.09	185.00	1.25	24.30	223.09	62.54
32	32	....	....	....	....	....	....	....	....	....	42	22	64	....	....	248.95	....	62.14	311.09	....	....	....	311.09	311.09
35	30	1	....	1	18	16	34	23	23	46	47	31	78	1	4	81.16	146.30	10.00	237.46	78.00	38.80	....	237.46	125.66
36	36	1	....	1	24	22	46	18	15	33	34	30	64	1	3	53.95	118.14	12.00	184.35	105.00	5.00	....	184.85	54.85
37	37	1	1	2	42	36	78	38	24	62	51	44	95	2	7	268.06	248.98	....	511.99	335.00	65.25	....	511.99	111.74
39	39	1	....	1	18	20	38	12	15	27	24	26	50	1	4	70.28	92.50	18.00	180.78	92.00	....	14.00	180.78	74.78
40	40	1	....	1	20	18	38	15	12	27	28	26	49	1	4	87.57	89.65	28.30	205.52	100.00	8.05	....	205.52	96.87
42	10	....	1	1	9	10	19	8	7	15	18	19	37	1	5	161.87	71.45	58.08	290.90	250.00	....	19.50	290.90	21.40

43	17	....	....	....	....	....	....	....	....	....	51	41	92	....	....	.44	93.00	27.55	120.99	....	6.00	62.85	120.99	52.64
44	4	1	....	1	16	20	36	12	18	25	20	31	51	1	4	98.62	94.35	....	192.97	80.00	....	9.25	192.97	108.72
45	35	....	1	1	28	17	45	18	12	30	38	26	64	1	6	269.80	118.40	89.82	478.02	335.00	41.30	....	478.02	101.72
46	36	....	....	....	....	....	....	....	....	....	12	15	27	....	....	17.72	....	....	17.72	....	....	....	17.72	17.72
47	35	....	1	1	36	38	74	24	24	48	71	49	120	1	7	231.73	307.04	230.63	769.40	445.00	....	23.85	769.40	261.55
48	{31 32}	}...	1	1	8	5	13	6	3	9	10	7	17	1	4	45.51	61.45	7.00	113.96	100.00	....	....	113.96	13.96
49	11	....	1	1	16	18	34	14	14	28	34	27	61	1	4	95.12	112.85	40.97	248.94	168.83	....	....	248.94	80.11
Total (43).	43	22	14	36	1,065	872	1,937	717	575	1,292	2,159	1,888	4,047	36	166	5,906.13	6,280.72	4,754.13	16,940.98	7,780.13	720.20	1,854.08	10,354.36	6,586.62

District schools in New Mexico—Continued.

TAOS COUNTY.

District.	Precinct.	Scholars between the ages of 5 and 21 years.			Schools.	Months taught.	Receipts.				Expenditures.			On hand.
		Males.	Females.	Total.			Balance Dec. 1, 1898.	From county school fund.	Poll tax, fines, etc.	Total.	Teachers' wages.	Rent, fuel, etc.	Total.	
1	1	119	123	242	2	5	$431.85	$1,002.89	$35.30	$1,469.94	$684.90	$311.00	$995.90	$474.04
2	2	84	122	206				109.18		109.18				109.18
3	3	185	191	376	1	3	155.35	327.27		484.62	145.95		145.95	338.67
4	4	46	65	111			1.47	58.83		60.30				60.30
5	5	94	84	178	1	5	274.85	207.01	12.60	494.46	152.10		152.10	342.36
6	6	65	66	131	1	3	169.08	69.43		238.51	28.25		28.25	210.26
7	7	69	71	140	2	3	497.16	203.55	5.00	705.71	430.26		430.26	274.45
8	8	80	60	140			.03	74.26		74.29				74.29
9	9	49	47	96			.05	66.88		66.93				66.93
10	10	45	43	88	1	3	73.26	176.90		250.16	102.00		102.00	148.16
11	11	72	62	134			61.23	71.02		132.25				132.25
12	12	44	40	84	1	3	65.18	102.94		168.12	91.25		91.25	76.87
13	13	15	9	24	1	2	35.51	142.05		177.56	7.00		7.00	170.56
14	14	48	32	80			16.32	37.10		53.42				53.42
15	15	9	16	25			2.64	155.26		157.92	66.66		66.66	91.36
16	16	85	77	162			4.95	85.86		90.81				90.81
17	17	40	41	81				42.93		42.93				42.93
18	18	51	50	101				53.53		53.53				53.53
19	19	20	21	41				22.26		22.26				22.26
20	20	24	26	50				26.50		26.50				26.50
21	21													
22	22	50	52	102				54.18		54.18				54.18
23	23	67	53	120			4.37	63.60		67.97				67.97
24	24	27	28	55			13.87	44.01		57.82				57.82
25	25	20	17	37	1	3	184.87	83.60		268.47	217.25		217.25	51.22
26	26	5	3	8			50.64	4.24		54.88				54.88
27	27	66	52	118	1	4	187.58	141.52		329.10	266.55		266.55	62.55
29		35	28	63				33.59		33.59				33.59
30		10	9	19	1	3	154.16	90.06		244.22	154.16		154.16	90.06
31		68	72	140	1	3	97.27	118.83		213.10	128.00		128.00	85.10
33		28	28	56	1	3	120.76	96.62		217.38	26.00		26.00	193.38
34		56	56	112	1	3	257.25	96.02	54.56	412.83	85.00		85.00	327.83
Total (32)	27	1,676	1,644	3,320	16	46	2,859.70	3,856.92	107.46	6,824.08	2,585.33	311.00	2,896.33	3,927.75

UNION COUNTY.

District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of 5 and 21 years.			Schools.	Months taught.	Receipts.				Expenditures.				On hand.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Dec. 1, 1898.	From county school fund.	Poll tax, fines, etc.	Total.	Teachers' wages.	Rent, fuel, etc.	School houses and grounds.	Total.	
1	1	1	2	3	77	55	132	62	38	100	174	130	304	1	6	$240.00	$3,451.83	$582.00	$4,223.83	$1,200 00	$402.52	$1,020.00	$2,623.52	$1,601.31
2	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	7.85	....	80.58	88.43	....	....	....	....	88.43
3	3	1	2	3	100	85	185	64	103	167	95	91	186	1	7	6.30	3,275.27	50.00	3,331.57	1,435.00	100.00	1,360.40	2,895.40	436.17
4	4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	28.00	....	74.37	102.37	....	....	....	....	102.37
5	5	....	....	....	....	....	....	....	....	....	39	23	62	....	....	28.00	....	30.00	58.00	....	....	....	....	58.00
6	6	1	....	1	11	2	13	11	2	13	34	21	55	1	2	40.80	....	35.00	75.80	75.00	....	....	75.00	.80
7	7	1	....	1	29	18	47	29	18	47	50	28	78	1	3	72.00	353.50	46.26	371.76	95.50	20.00	....	115.50	256.26
8	8	1	....	1	17	16	33	13	12	25	62	63	125	1	3	143.24	442.00	45.00	630.24	96.25	12.25	....	108.50	521.74
9	16	1	....	1	27	5	32	18	3	21	38	29	67	1	5	182.94	217.75	49.10	449.79	175.00	31.00	....	206.00	243.79
10	10	....	....	....	....	....	....	....	....	....	34	32	66	....	....	35.44	....	16.00	51.40	....	....	....	....	51.44
11	11	1	....	1	8	9	17	6	6	12	31	32	63	1	2	56.50	343.01	23.50	423.01	70.00	10.00	....	80.00	343.01
12	12	1	....	1	8	15	23	18	15	33	54	44	98	1	3	143.66	418.50	96.00	658.16	120.00	15.00	....	135.00	523.16
13	13	1	....	1	....	....	....	....	....	....	28	28	56	1	3	35.00	40.00	10.00	85.00	75.00	10.00	....	85.00	....
14	14	1	....	1	14	11	25	7	11	18	27	30	57	1	3	45.60	185.25	48.00	278.85	78.00	32.00	....	110.00	168.85
15	15	....	1	1	16	11	27	12	6	18	51	45	96	1	3	106.00	267.48	10.00	383.48	105.00	11.00	....	116.00	267.48
16	9	1	....	1	12	9	21	12	5	17	15	13	28	1	3	50.00	213.27	20.00	283.27	75.00	15.00	....	90.00	193.27
17	15	1	....	1	13	7	20	12	6	18	39	33	72	1	3	101.70	234.00	105.00	440.70	90.00	15.00	....	105.00	335.70
18	2	1	....	1	12	19	31	18	15	33	34	21	55	1	5	43.20	188.50	....	231.70	200.00	28.82	....	228.82	2.88
Total (18)	18	13	5	18	344	262	606	282	240	522	805	663	1,468	14	51	1,366.23	9,530.36	1,270.81	12,167.40	3,889.75	702.59	2,380.40	6,972.74	5,194.66

District schools in New Mexico—Continued.

VALENCIA COUNTY.

District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of 5 and 21 years.			Schools.	Months taught.	Receipts.				Total expenditures.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.			Balance Dec. 1, 1898.	From county school fund.	Poll tax, fines, etc.	Total.	
1	1	......	1	1	85	20	55	85	20	55	85	20	55	1	8	$133.76	$115.76	$18.00	$267.52	$269.52
2	2	1	1	2	63	85	98	63	85	98	63	85	98	2	8	157.21	112.21	45.00	314.41	314.41
5	5	1	......	1	18	14	32	14	11	25	18	14	32	1	4	....	24.30	79.26	103.56	103.56
12	12	1	......	1	36	16	52	36	16	52	36	16	52	1	3	....	57.61	....	57.61	57.61
15	15	1	......	1	55	......	55	55	......	55	55	......	55	1	3	....	63.00	....	63.00	63.00
17	17	1	......	1	36	31	67	28	28	56	36	31	67	1	8	227.00	165.30	21.20	413.00	413.00
21	21	1	......	1	25	11	86	25	9	34	25	11	36	1	8	45.00	70.00	....	115.00	115.00
25	25	......	1	1	16	12	28	16	12	28	16	12	28	1	3	40.13	43.00	....	83.13	83.13
27	27	1	......	1	28	13	41	28	13	41	28	13	41	1	3	78.00	93.00	....	171.00	171.00
28	28	1	......	1	15	17	82	14	13	27	15	17	32	1	3	25.00	25.00	....	50.00	50.00
29	29	1	......	1	29	26	55	29	26	55	29	26	51	1	3	25.00	95.13	....	120.13	120.13
30	30	1	......	1	13	11	24	13	11	24	13	11	24	1	3	36.00	28.16	....	64.16	64.16
32	32	1	......	1	14	......	14	14	......	14	14	......	14	1	3	....	20.00	....	20.00	20.00
33	33	1	......	1	25	14	39	25	14	39	25	14	39	1	3	25.00	67.10	....	92.10	92.10
Total	......	12	8	16	432	244	676	419	232	651	432	244	676	16	61	791.10	979.57	163.46	1,984.13	1,984.13

RECAPITULATION OF DISTRICT SCHOOLS.

County.	District.	Precinct.	Teachers.			Enrollment.			Average daily attendance.			Scholars between the ages of 5 and 21 years.		
			Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Bernalillo	49	50	50	38	88	2,229	1,935	4,164	1,599	1,370	2,969	3,889	3,715	7,604
Chaves	16	......	3	12	15	249	311	561	290	234	524	484	487	971
Colfax	26	26	17	25	42	728	741	1,469	514	890	1,404	1,226	1,582	2,808
Dona Ana	28	30	7	22	29	698	483	1,181	439	309	748	2,125	1,818	3,943
Eddy	16	4	9	9	18	294	247	541	177	140	317	536	403	939
Grant	28	24	12	26	38	484	414	898	289	271	560	1,658	1,451	3,109
Guadalupe	19	15	12	2	14	405	186	591	325	142	467	518	720	1,538
Lincoln	21	21	21	10	31	......	......	......	......	......	......	751	565	1,316
Mora	29	25	29	4	33	1,008	982	1,990	684	705	1,389	1,651	1,619	3,270
Otero	15	25	......	......	......	......	......	......	......	......	......	589	581	1,070
Rio Arriba	43	42	34	5	39	1,048	439	1,487	697	404	1,101	1,150	1,879	3,024
San Miguel	75	42	60	18	78	1,814	1,187	3,001	1,064	754	1,818	3,982	3,354	7,336
San Juan	22	21	8	8	16	205	162	367	140	110	251	495	412	907
Santa Fe	27	25	27	6	33	839	569	1,408	605	357	962	2,198	1,995	4,193
Sierra	15	15	8	6	14	277	183	460	230	120	350	619	494	1,113
Socorro	43	43	22	14	36	1,065	872	1,937	217	575	1,292	2,159	1,888	4,047
Taos	32	27	14	3	17	228	197	425	242	100	342	1,676	1,644	3,320
Union	18	18	13	5	18	344	262	606	282	240	522	805	663	1,468
Valencia	31	31	12	14	16	432	244	676	419	232	651	432	244	676
Total	553	484	358	217	575	12,347	9,414	21,761	9,339	7,294	16,533	27,149	25,508	52,652

District schools in New Mexico—Continued.

RECAPITULATION OF DISTRICT SCHOOLS—Continued.

County.	Schools.	Months taught.	Receipts.				Expenditures.				On hand.
			Balance.	From county school fund.	Poll tax, fines, etc.	Total.	Teachers' wages.	Rent, fuel, etc.	School houses and grounds.	Total.	
Bernalillo	74	667	$13,174.82	$46,508.86	$6,446.81	$66,130.49	$33,736.30	$12,455.35	$1,345.95	$47,537.60	$18,592.89
Chaves	17	55	3,031.74	6,505.30	....	9,537.04	....	....	3,663.48	3,663.48	5,873.56
Colfax	30	122	8,998.36	5,702.80	4,149.25	18,850.41	5,715.94	1,745.26	....	7,461.20	11,389.21
Dona Ana	25	95	4,204.83	4,754.90	2,263.38	11,223.11	6,128.13	843.27	808.00	7,779.40	3,443.71
Eddy	18	93	1,422.15	5,725.80	5,830.40	12,978.35	4,122.00	466.46	1,195.34	5,783.80	7,194.55
Grant	28	113½	4,783.09	34,102.56	688.18	39,573.83	12,913.50	765.69	1,183.76	14,862.95	24,710.88
Guadalupe	14	41	845.07	889.02	....	1,734.09	1,415.50	....	....	1,415.50	318.59
Lincoln	19	12	1,785.58	1,190.27	80.00	3,055.85	180.00	58.57	191.30	429.87	2,625.98
Mora	33	109	563.79	2,413.16	3,510.35	6,487.30	3,090.00	614.00	....	3,704.00	2,783.30
Otero	15	....	....	1,242.55	638.42	1,880.97	....	....	....	....	1,880.97
Rio Arriba	31	97	1,327.96	1,741.46	2,566.63	5,636.05	2,994.18	673.40	....	3,667.58	1,968.47
San Miguel	65	138	2,359.47	10,073.50	2,455.71	14,888.68	6,285.01	1,006.75	315.20	7,606.96	7,281.72
San Juan	16	149	538.86	2,751.36	171.18	3,461.40	1,955.67	290.71	....	2,246.38	1,215.02
Santa Fe	32	154	2,801.59	9,259.91	462.53	12,524.03	3,840.25	775.85	137.25	4,752.85	7,771.18
Sierra	14	52	1,651.46	2,627.70	999.94	5,279.10	2,146.50	533.61	....	2,680.11	2,598.99
Socorro	36	116	5,906.13	6,280.72	4,754.13	16,940.98	7,780.13	720.20	1,854.03	10,354.36	6,586.62
Taos	16	46	2,859.70	3,856.92	107.46	6,824.08	2,585.33	311.00	....	2,896.33	3,927.75
Union	14	51	1,366.23	9,530.36	1,270.81	12,167.40	3,889.75	702.59	2,380.40	6,972.74	5,194.66
Valencia	16	61	791.10	979.57	163.46	1,934.13	1,934.13	....	....	1,934.13	....
Total	513	2,070	58,411.93	156,136.72	36,558.64	251,107.29	100,712.32	21,962.21	13,074.71	135,749.24	115,358.05

Scene on El Paso and Northeastern Railroad, Otero County, N. Mex.

THE UNIVERSITY OF NEW MEXICO.

SIR: I have the honor to transmit herewith my annual report of the condition of the University of New Mexico for the school year closing with the commencement exercises of June 7, 1900.

The year has been in many ways the most successful in the history of the institution; but it brings us to the "parting of the ways," so that the time immediately before us shall be forever memorable in the history of the university, either as the beginning of a new era of prosperity or a time of blasted hopes.

The University of New Mexico was incorporated by an act of the Territorial legislature of 1889, and the location fixed at Albuquerque. The regents secured the necessary amount of land required by the enacting law and began the erection of a suitable building as soon as their funds would permit. In May, 1892, the building was completed and accepted by the board of regents. On June 15, 1892, the normal department of the university was opened; on September 21, 1892, the preparatory department was opened, and in November, 1893, the commercial department was added.

The university has been in successful operation for eight years, having conferred during this time thirty diplomas of graduation and many certificates of satisfactory work in more limited courses of study. The standard of work has steadily risen, and the facilities for the study of the liberal arts and sciences are being continually increased to meet the growing demands of the community. Material development has kept pace with internal growth, and the university, with its commodious buildings and growing apparatus and library, can now offer better facilities for study and scientific research than ever before, embracing a wide variety of subjects taught by specialists in every branch.

There have been enrolled during the past year in the academic work 105 students, in the music school 52, and in the university extension class 22 students. Numerically, the increase, although encouraging, is offset by the fact that about 25 students who desired to enter the university were prevented from so doing by the great expense of board and the lack of dormitory privileges. The faculty are unanimous that it is useless to invite students throughout the Territory to enter the university until this difficulty is met. Only such students as live in Albuquerque and a few with independent means can hope to meet the expense of living now entailed. It is apparently too early to expect that generous appreciation of the value of education to the community that will awaken cooperation in such a matter on the part of the resident public.

The internal administration has been disturbed by no infraction of discipline, and a conspicuous improvement in the smoothness with which administrative business has moved is to be ascribed to more perfect organization and division of labor.

The greater maturity of our students has evidenced itself not only in a higher and more thorough kind of class work, but also in the success of the student organizations, the literary societies, oratorical and athletic associations, and the college paper which collectively constitute so good an index of college life, give evidence of the superiority of the year just closed.

Sharper lines of demarcation have been drawn between the several schools of the university, and the commercial school has been made to rank with the others in time and intensity of the work, and it is hoped that an increasing number will thus be led to combine with the technical work of this department the broader studies of an academic course.

The normal school has approved itself by the character of work done by its graduates, and enjoys the great advantage over most similar schools that it commands the assistance of the entire college faculty as well as the stimulus and broadening influence of higher work.

A very gratifying appreciation of the work of the university from outside the borders of the Territory has manifested itself, and may be attributed in part to the influence of the numerous publications emanating from the university.

The second volume of the bulletin of the university will consist of two parts, each a large volume. The first is now ready, and is largely composed of work done by the geological survey, being chiefly devoted to the discussion of certain economic problems. The volume is illustrated by 2 lithographic maps and 30 plates. Incidentally, this volume illustrates not only the facilities of the university for giving instruction in practical geology and mining, but also the work actually done by the students. The first paper of 75 pages is devoted to the detailed geology of the geology sheet of the proposed map of the Territory. It embodies the work of four of the advanced students as well as of the head of the geological department, and discusses the clay and other economic products of the sheet. This paper is illustrated by 32 plates and 2 lithographic maps. The second part of the report is devoted to the salt and gypsum lands of the Territory, and supplies an exhaustive account of these lands recently given to the university by act of Congress. In this work three of the students of the university have actively assisted. This part is fully illustrated with colored maps and plates. A brief paper by another student identifies a very interesting geological horizon in the Sandia range of New Mexico, hitherto found only in Ohio.

The last illustrated paper is by Mr. V. V. Clark, who describes the application of the cyanide process to New Mexico ores. The chemical work on which this paper was based was in part done at the university. A large amount of work prepared for this volume was crowded out, and will appear in Eastern journals. The publication of this volume has cost the Territory and the university nothing, as the fund was supplied for a large part by Mrs. Hadley. The second part is in preparation, and will be devoted to the results of the work of the Hadley Laboratory. Researches of paramount interest in the control of disease by climatic agencies are being carried on, although the work of the laboratory will soon come to an abrupt standstill unless money for equipment is supplied.

The papers under way for the second part include a general account of the present status of the treatment of lung diseases by climatic influence, a paper on the bacterial flora of the air and water of the Territory, together with a discussion of the dangerous species and conclusions as to the bacterial conditions upon the plateau, a paper based on the statistics of the late Dr. Maltby on the effect of the altitude on the vital capacity of school children and others living on the plateau, a paper on the effect of altitude on the blood and the physiological results, as well as a variety of other papers on the other side of the great subject.

The building for the work of this laboratory has been completed, and in appearance and internal arrangement is all that could be desired.

From an architectural point of view the building may be described as follows: A basement of light-colored sandstone rises 5 feet above the ground, and is surmounted by fine brick walls 27 feet high. The brick are laid in colored mortar, with a tooled joint. All the sills and lintels are of the same fine, gray sandstone as the basement. The façade is accentuated by the central projection of 7 feet, in which is placed the main entrance. This entrance is approached by a broad flight of stone steps, and is flanked on each side by a pilaster 30 feet high supporting the roof of this central bay. While the fenestration is strictly symmetrical as regards the axis of development, yet the grouping is such as to give variety and sparkle to the design, and by the use of piers with imposts and bases an additional effect is obtained. Several dormers intersect the main roof, which has a deck surrounded by iron casting. All the outlines of the roof sweep down to the projecting cornice with very graceful curves.

The interior of the building has been planned from the standpoint of utility and convenience, being especially well adapted to the purposes it is intended to serve. Still the corridors, staircase, halls, and private studies present a very pleasing appearance. The woodwork consists of Missouri pine, natural finish, which gives brightness to the already well-lighted rooms.

The building is heated by hot water, and the plumbing and ventilating systems are of the most modern and approved sanitary design. All the laboratories are provided with gas from the university plant and with water from the city system.

On the first floor are to be found the laboratories of histology, zoology and botany, and geology; also the herbarium, a large lecture room, and a private study for the use of the department of geology. The laboratories of physics, chemistry, and bacteriology occupy the second floor. A large stock room opens from the general chemistry room, and the hood room separates the latter from the quantitative laboratory. Between the physics and quantitative laboratories is located the balance room directly accessible from both. A constant temperature vault is located in the basement, and a large deck is provided for the use of the Weather Bureau and special meterological investigations.

The following passage from the catalogue will serve to indicate the work so far outlined:

"THE HADLEY CLIMATOLOGICAL LABORATORY.

"This department of the work of the university is an organization for research especially with reference to the influence of the climate of the arid and plateau region of the United States upon disease. A very broad view is taken of the scope of this investigation and nothing will be neglected which may be expected to bear in any way upon the great problem for which this organization exists.

"*Organization*—Director, C. L. Herrick, Ph. D., biology, climatology, and geognosy; vice-director, John Weinzirl, M. S., bacteriology and physiological chemistry; Edward P. Childs, B. S., director of the physical laboratory, physics and meteorology; George E. Coghill, A. B., M. S., neurology and histology; J. F. Rutherford, M. D., hæmatology; ———, physical examiner; M. Custers, observer, Weather Bureau.

"*Advisory medical board.*—Charles Denison, M. D., Denver; G. S. Easterday, M. D., Albuquerque; A. M. Holmes, M. D., Denver; J. A. Henry, M. D., Albuquerque; J. H. Sloan, M. D., Santa Fe; S. D. Swope, M. D., Deming; John Tascher, M. D., Albuquerque; W. R. Tipton, M. D., Las Vegas; J. H. Wroth, M. D., Albuquerque.

"*Work of the laboratory.*—It is not possible to outline in advance the full scope of the work of this department, but a few of the lines of work already begun or contemplated may be indicated.

"Bacteriology: Considerable work has been accomplished in this field and a number of important problems have been opened. A study of the air flora shows that it differs materially from that of other sections of our country, and also that the number of organisms is relatively very small. The sanitary effect of the winds in sweeping the towns and thickly populated communities is a very interesting problem now under investigation. The bactericidal effect of intense sunlight is very great as is shown by data at hand. The desiccating effect of the dry atmosphere on germ life is most pronounced. These several factors furnish a material basis for the remarkable freedom from disease, and the general healthfulness of the climate. The study of several diseases is in progress, special emphasis being placed upon tuberculosis. Experiments on laboratory animals show that tuberculosis is not readily communicated by inoculation, while the tendency to recover from such inoculation is remarkable. Many of the physicians of the Territory avail themselves of the facilities of the laboratory for making sputum and other bacteriological examinations.

"Vital statistics: Physical examinations have been made at intervals of the students of the university and others of the schools of the Territory, and important data have been accumulated. It is intended to extend this work materially, as the very promising results tend to show that climate and altitude have a remarkable effect upon the physicial development of the child, especially as shown in increased lung capacity.

"Pathology: With the assistance of the physicians of the Territory, it is hoped to collate a mass of statistics bearing directly upon the question of the effect of this climate upon disease.

"Physiography: That the climate is greatly influenced by physiographic conditions, such as soil, topography, geological conditions, etc., is patent at first thought. In connection with the university geological survey there has been carried on systematic work in the study of the facts referred to in their bearings on climate and disease. This work will include a report on the hydrography of the Territory.

"Physics: The electrical and photometric conditions of the plateau are of great importance in the appreciation of the effects of climate, and an effort will be made to determine the physical and physiological effects of sunlight, electrical phenomena, winds, etc.

"Meteorology: The principal work accomplished in this line has been the determination of atmospheric and soil moisture. Evaporation tests are also in progress. It is the intention to establish a complete weather bureau in the near future, thus giving us a vast amount of desirable information regarding our climatic conditions.

"Chemistry: The chemical examination of the soils, air, and physiological media goes hand in hand with the work outlined in other lines. Examinations are also made for the physicians of the Territory.

"Hæmatology: Research in this field appears very promising. Some data have been collected, especially in the way of blood counts of persons coming to our altitude. A remarkable increase in the number of blood corpuscles is shown soon after their arrival. The importance of this factor appears to be considerable. It is expected to study the blood from other points of view, more especially from the chemical aspect.

"Experimental physiology: Experimental control of the results by the various methods outlined above will be necessary from time to time. The cooperation of all those interested in this work is earnestly solicited."

A very interesting result of the physical measurements already taken is the discovery of the fact that young persons who have spent the formative years of their lives in New Mexico upon the plateau seem, with hardly an exception, to have developed a greater lung capacity than is usual in students of the same age in Eastern institutions, so that, from the standpoint of physical development, it is highly desirable that children, especially if any tendency to deficiency in this direction is suspected, should have the opportunity to pass the years from 10 to 20 in this region, and it is a matter of congratulation that there is now an opportunity to accomplish this result with no sacrifice of educational facilities.

The list of the faculty appended will indicate a fact very gratifying to the friends of education in the West, namely, that the professors, almost without exception, are persons with the highest training and with experience in university work in older institutions. In this connection, however, it must be admitted that, while advantage has been taken of temporary conditions to secure this desirable personnel of the faculty at an almost nominal expense, such conditions can not be continued. Demands from older schools are depriving us of our most useful members, and the result can only be that as soon as the well-approved workmen in the institution reach a point where they are most useful to us they are called to fields offering promise of support.

The years past have sufficiently proven that it is possible here to achieve success and to attain results equal to those in the older institutions, and we are now face to face with the question whether the Territory desires to enter into and possess the field thrown open to it, or whether the work in the field of higher education shall be permanently crippled. In order to succeed in any worthy way there must now be sufficient funds secured, not for a single term, but for a series of years, to supply adequate salaries to the small corps of instructors which experience shows to be necessary. The requirements for additional apparatus are not less imperative. The great work confidently expected of the Hadley laboratory organization can not be undertaken without a moderate equipment. It is hoped that the self-denying generosity of our citizens may not be thwarted for lack of the necessary apparatus and equipment for this work, in which we have the promise of cooperation from eastern organizations without cost to the Territory.

There is demand for the addition of a department of electrical engineering, and the buildings at present in existence would be sufficient to house the plant for years to come if a relatively small amount could be secured for the equipment. At the present time the economic applications of electricity, more than of almost any other single physical force, bid fair to revolutionize the industries on which our Territory depends for its immediate development. An immediate and pressing need is for cases and shelving to receive the collections of the geological survey.

Departmental statements were made in my last report to the superintendent of instruction, and can be reproduced, if desired, from that source. It is sufficient to state that each of the several departments and schools is enjoying as high a degree of efficiency as the present conditions permit, and all that now seems necessary, in order that the institution should speedily realize the most sanguine hopes of the friends of higher education, is an adequate financial support.

A list of the faculty of the university for the past year is appended from the current catalogue, which, with the above, is

Respectfully submitted,

C. L. HERRICK.

Hon. M. A. OTERO,
Governor of New Mexico.

FACULTY FOR 1900-1901.

Clarence L. Herrick, Ph. D., president, professor of psychology and philosophy and professor of biology; B. S., University of Minnesota, 1880; University of Leipzig, 1882–83; Geological Survey of Minnesota, 1883–1885; professor of geology and natural history in Denison University, 1885–1889; professor of biology in University of Cincinnati, 1889–1892; University of Berlin, 1892–93; professor of biology in University of Chicago, 1893; professor of biology in Denison University, 1894–1897.

Josephine S. Parsons, principal of the commercial department and instructor in mathematics; High School, Louisville, Ky.; teacher in same; with Gross, Blackwell & Co.; principal of commercial department University of New Mexico, 1893.

James Hay Paxton, A. M., professor of Latin and Greek, and in charge of French; B. A., University of Virginia, 1892; M. A., University of Virginia, 1894; instructor in ancient languages, University of Virginia, 1892–1896; University of New Mexico, 1896.

Charles E. Hodgin, B. Pd., principal of normal department and professor of pedagogy; graduate of Indiana State Normal, 1881; studied at Cook County Normal, Chicago, summer, 1893; and at Chatauqua, Long Beach, Cal., 1896; principal public schools, Trafalgar, Ind.; instructor in methods, Richmond Normal School, Richmond, Ind.; principal Albuquerque Academy, Albuquerque, N. Mex., 1887–1891; superintendent Albuquerque public schools, Albuquerque, N. Mex., 1891–1897; principal of normal department, University of New Mexico, 1897.

Atanasio Montoya, jr., instructor in Spanish; studied in University of New Mexico, 1893–1896; instructor in Spanish, University of New Mexico, 1896.

Frank S. Maltby, A. B., M. S. (to Jan. 1899), director of the gymnasium and registrar; A. B., Moore's Hill College, 1893; Johns Hopkins' Medical School, 1893–1895; M. S., University of New Mexico, 1899.

John Weinzirl, M. S., vice-director of Hadley Climatological Laboratory; professor of bacteriology and chemistry; graduate State Normal School, River Falls, Wis., 1893; B. S., University of Wisconsin, 1896; graduate student in University of Wisconsin and University of New Mexico, 1896–1898; M. S., University of New Mexico, 1898; M. S., University of Wisconsin, 1899; assistant professor of biology in University of New Mexico, 1898–99; professor of bacteriology and chemistry in University of New Mexico, and vice-director of Hadley Climatological Laboratory, 1899.

George E. Coghill, A. B., M. S. (absent on leave during 1891), assistant professor of biology; Shurtleff College, 1891–1893; A. B., Brown University, 1896; M. S., University of New Mexico, 1899.

Edward P. Childs, B. S., dean of the College of Science, Literature, and Arts, and professor of physics and mathematics; Michigan University, Denison University, and Harvard Summer School; B. S., Denison University, 1894; professor of physics and mathematics in Fargo College, 1891–1893; instructor in mathematics in Denison University, 1893–94; acting professor of physics and chemistry in Denison University, 1894–95; instructor in physics and chemistry in Pueblo High School, 1895–1898; professor of physics, chemistry, and mathematics in the University of New Mexico, 1898.

Wilhelm Fick, Ph. D., professor of German and English literature; Harvard College, 1887–88; University of Breslau, 1889–90, 1891–1893; Ph. D., University of Berlin, 1890–91; instructor in English and German, Victoria College, University of Toronto, 1893–94; lecturer in German, 1894–1897; examiner in arts, University of Toronto, 1893–1897; instructor in German, Colorado College, 1897–98; University of New Mexico, 1899.

Ella D. Coltraine, principal of the Model School and Critic Teacher.

Mary E. Gilmore, director of the music department and teacher of the piano and organ; Genesee, N. Y., Normal; studied with A. R. Parsons, Metropolitan College of Music, New York, and with Emil Liebling, Chicago.

J. Franklyn Messenger, A. B., instructor in psychology and philosophy; University of Kansas, A. B., 1895; Harvard University, 1897–98.

Catherine Fields, instructor in English and director of Woman's Gymnasium, 1900.

M. Custers, custodian and librarian.

MODERN UNIVERSITY.

The commencement exercises of the University of Albuquerque, held this week, attracted attention beyond the boundaries of the Territory, because at the same time the beautiful Hadley laboratory was dedicated. Mrs. Walter C. Hadley donated $10,000 toward the erection of the building, which had become a necessity for the rapidly extending work of the university.

The University of New Mexico is an institution of higher learning of which New Mexico has every reason to be proud. The work it has accomplished will compare favorably with that of other State universities of the West, and the high standing of its president, Clarence L. Herrick, in the scientific world should and does draw to it pupils from other States.

In the line of original research the university is doing pioneer work in New Mexico, and the investigations carried on at its laboratory are of great benefit not only to the Territory, but to the world at large.

Increasing facilities.—The university has been in successful operation for eight years, having conferred during this time 30 diplomas of graduation and many certificates of satisfactory work in more limited courses of study. The standard of work has steadily risen, and the facilities for the study of the liberal arts and sciences are being continually increased. Material development has kept pace with internal growth, and the university, with its commodious buildings and growing apparatus and library, can now offer better facilities for study and scientific research than ever before, embracing a wide variety of subjects taught by specialists in every branch.

The geological survey has been prosecuted with energy. The work of the Hadley laboratory of climatology is progressing satisfactorily, and many interesting data are accumulating, bearing on the effect of the climate of the Territory upon disease. The Hadley laboratory is completed, and will be furnished and ready for occupancy by the beginning of the next school year.

Buildings.—On a commanding site, some distance east of the railroad depot and on Railroad avenue, are the university buildings, from which is obtained a good view of the mountains to the northeast and the Rio Grande Valley to the west and south. The main building is a large and commodious brick structure of three stories besides the basement. On the first floor are four recitation rooms and two offices; on the second floor are also four recitation rooms, laboratory, and cabinet, and on the third floor is a laboratory and the large assembly rooms now containing the museum. The basement is occupied by the heating and ventilating apparatus, and has four large rooms for laboratories.

The gymnasium.—The gymnasium is a substantial building 30 by 50 feet. It is provided with the best of apparatus, which has been largely added to during the past year. Provision is made for physical measurements and record. The physical-culture work is under expert supervision, both for the young men and the young women. Provision has also been made for military drill. Outdoor athletics are encouraged within the bounds of moderation.

A curious fact.—A very interesting result of the study of the physical measurements already taken is the discovery of the fact that young persons who have spent the formative years of their lives in New Mexico upon the plateau seem, with hardly an exception, to have developed a greater lung capacity than is usual in students of the same age in Eastern institutions, so that, from the standpoint of physical development, it is highly desirable that children, especially if any tendency to deficiency in this direction is suspected, should have the opportunity to pass the years from 10 to 20 in this region, and it is a matter of congratulation that there is now an opportunity to accomplish this result with no sacrifice of educational facilities.

The new laboratory.—During the past year there has been erected upon the campus east of the main building a commodious laboratory for the purposes of the climatological study already begun. The building will also serve to house the several laboratories, and will add a great stimulus to all the scientific work in the institution. The building is the result of the generous gift of Mrs. Walter C. Hadley, which has been supplemented by donations from friends of education throughout the Territory. The total cost will be about $20,000. While exceedingly attractive in appearance, the laboratory is one of the most satisfactorily arranged scientific buildings in the West.

Dormitory.—It is the intention of the board of regents to provide, by the beginning of the next session, a dormitory building for the accommodation of teachers and students who wish to live on the university grounds. It will be furnished with all the modern appliances of comfort, and will be under the management of some competent and reliable person, who will be prepared to give board and careful attention to its occupants.

Library and reading room.—The general library now contains over 3,800 bound volumes and 1,000 pamphlets, including the standard works of reference. From the proceeds of the annual incidental fees considerable additions are made, and the university is also the depository for public documents for New Mexico. From this source many most valuable books of reference are being received. This portion of the library is accessible to the public at all reasonable hours.

Courses of study.—Both a classical and scientific course are provided for, and the student has the choice of a number of elective courses. While a preparatory, a commercial, and a normal department are conducted in connection with the university, yet the university proper has as high a standing in its courses as have the leading universities of the East. It is no longer necessary for New Mexico parents to send their grown-up sons and daughters to other States for a university course, for the University of New Mexico offers all that is essential in the best university course, with the advantage of being situated in New Mexico's incomparable climate, and paying special attention to the needs of New Mexico. The university is coeducational, and while most of its students are from Albuquerque, yet a considerable number come from other parts of the Territory, and many register from other States.

NEW MEXICO COLLEGE OF AGRICULTURE AND MECHANIC ARTS AND AGRICULTURAL EXPERIMENT STATION.

MESILLA PARK, N. MEX., *July 1, 1900.*

HON. MIGUEL A. OTERO,
Governor of New Mexico.

SIR: I have the honor to submit the following statement concerning the New Mexico College of Agriculture and Mechanic Arts for the year ending June 30, 1900, incorporating the reports of several of the heads of departments:

From the beginning the college has steadily grown in the number of students in attendance and in the confidence of the people, until for the last three years there has been an enrollment of more than 200 students.

Four general courses are offered, namely, agricultural, mechanical engineering, civil engineering, and scientific, each of these being four years in length, leading up to the degree of bachelor of science. Besides these there are shorter courses in stenography and typewriting and in Spanish stenography.

During the present year a number of important advances have been made.

An irrigation engineer, who will be professor of civil engineering in the college, has been added to the station staff in the person of Mr. W. M. Reed, C. E., an engineer of large experience in the Territory, who has already conducted irrigation investigations in the Pecos Valley for the United States Department of Agriculture.

DEPARTMENT OF ENGLISH AND LATIN.

English.—In the English course the time is about equally divided between literature and rhetoric. In the latter work the "incidental" method of instruction has been adopted here. The student is required to express himself as carefully and idiomatically in his history, science, foreign language, and other classes as he is in his English class. Every piece of written work is thus made an exercise in composition, and is submitted to the instructor in rhetoric for criticism and afterwards returned to the student for correction. One of the great advantages of this plan is that the bane of the English course, the formal composition theme, is largely done away with, with a consequent economy of time and labor. During the past year some attempt has been made, by means of forensic exercises, to give instruction in moral expression. The work has proved more successful than might have been anticipated, although of course here, too, the "incidental" method is the only really effective one. Hereafter one full year in the history of English literature will be required of all students. An endeavor will be made to present our literature as an organic growth and as a natural outcome of race characteristics and climatic and social conditions. In connection with this work the recent large accessions of standard literature to the general history will be especially valuable.

Latin.—In view of the increasing demand for instruction in Latin a three-year course is now offered. The department is well equipped with all reference books necessary for the work.

DEPARTMENT OF ENGINEERING.

Engineering.—As a supplement to last year's report, which stated the purposes of the department and gave an outline of the work afforded to students who elect engineering and a brief description of the equipment, the following may be added: The work the past year has been the most satisfactory of any yet attempted in the history of the department. The engineering department was enabled to have a regular second assistant to replace the irregular and uncertain help of several students, and while there is still considerable work available for students who are capable, yet the regular operating work was so heavy that it was impossible to make a success of it on the old plan.

Besides enabling us to give better facilities for the study of the design and operation of steam and oil engines, the board of regents has been very liberal in its appropriations to the department for additional equipment. For the better study of the strength of materials there has been purchased a 60,000-pound Olsen testing machine, with a full set of attachments for making tensile, compressive, and transverse tests. For electrical engineering work a Weston ampere meter and a milivolt meter with shunts have been added, besides new galvanometers, resistance boxes, etc., in the physical laboratory, which are available to students taking this work. For enlarging the scope of the shop practice there has been purchased a complete brass foundry outfit, a sensitive drill for small work, a pipe-cutting and threading machine, and a standard electric clock having a pendulum which beats seconds, and an assortment of special tools and appliances which are continually needed in laboratory work.

There is a considerable demand for technically educated men in the lines of work for which they may be prepared practically free of charge in this college. Even for those who do not take the advanced studies and graduate there is very great value in the shop practice and drawing. This is one feature wherein the agriculture and mechanic arts colleges excel the nontechnical institutions. Besides offering the regular college training, the agriculture and mechanic arts college gives at the same time an industrial practice which can not be acquired at home or during the regular pursuit of a living in the majority of cases, as can to a considerable degree history, literature, and kindred subjects. As but a small percentage of students who enter college ever graduate, it is hoped that the full value of shop practice may be recognized in the case of all students attending the institution following definite courses arranged to meet all the requirements from the lowest to the highest grades.

The work of the institution has developed to such an extent that in future civil and irrigation engineering will constitute a separate department, the new professor taking charge of the work July 1, 1900.

DEPARTMENT OF POLITICAL AND ECONOMIC SCIENCE.

The two technical courses of this department are: An exposition of the general principles of economics, in which Davenport's Authors of Economic Theory is the handbook used, the subject being developed in the main by means of assigned readings and oral discussions. Collateral reading on special topics is assigned to the several members of the class, upon which they are required to report.

A comparative study of the development of government: In which the same general method is followed as in the course in political economy—assigned readings, recitations, and discussions, oral and written, by the class as a whole, and collateral reading and oral and written reports upon special reports by the members severally. Woodrow Wilson's The State is the text-book used.

In addition to giving these courses, the head of the department (who is the president of the college) also assists in the work of the department of history and philosophy, giving to the seniors a course running throughout the year, entitled "The history of civilization," in which the economic and political, as well as the religious, philosophical, and scientific development of mankind is traced. He also offers an elective course of a dozen lectures on the theory of education.

PREPARATORY DEPARTMENT.

This department is made necessary by the fact that the public schools of the Territory, except in the larger towns and cities, are unable as yet to prepare students for collegiate work. It is therefore one of the oldest departments of the college, although it now has a much smaller proportion of students of the institution than in the earlier years of its history. Quite an addition has been made recently to its equipment, which will materially aid its work.

Several modern ideas have been introduced during the past year. One of these, Mr. J. Liberty Tadd's system of manual training, has produced some remarkable results. An exhibit of some of this work at the last meeting of the Texas State Teachers' Association attracted a great deal of attention and elicited much favorable comment.

A system of self-government in which the students assumed control of the discipline of their respective classes was introduced with some success and will be continued.

Besides these and other innovations, the instruction in the ordinary branches is well up to date, making, it is thought, a progressive modern school second to none in the Southwest.

DEPARTMENT OF CHEMISTRY.

The work of this department, like that of several other departments of the institution, consists of two parts—the instruction of the college students and the agricultural experiment station work.

In the college work the year just closed has been a very successful one. A larger number of students have received instruction in the department than ever before.

The number of students receiving instruction in the chemical department of this institution is, of course, still small compared with many of the older Eastern institutions. This institution, however, compares very favorably in this respect with many similar institutions in the West, and the fact that the number of students is increasing from year to year shows a growing appreciation by the people of the Territory of the advantages offered here.

The chemical department is one of the best equipped departments of the institution. The laboratories are new and were specially designed to accommodate the work. They are well lighted and ventilated, and conveniently located on the first floor of the new science building. The equipment of the laboratories is modern and first class in every particular, and is constantly being increased as rapidly as the funds will permit. It is confidently believed that an inspection of our plant will convince parents having children to educate of the uselessness of sending them East to secure the benefit of laboratory facilities. In fact, in consequence of the necessarily small number of students receiving instruction, it is possible to allow students the use of a larger amount of apparatus and to give them more personal attention than would be the case in many of the older institutions.

The instruction given in this department is made as practical as possible. The first aim is to present a general outline of the subject such as any student of science should have. This is intended both as a valuable addition to the student's general knowledge and as a basis for advanced work, both in this department and other departments of the institution. After the fundamental text-book work the student's work is very largely in the laboratories. He is taught the various analytical processes by actual practice, and should be fitted at the end of his course to take up some line of technical chemical or metallurgical work, if he so desires.

The character of the advanced work taken is left very largely to the choice of the student. Thus work may be selected relating to the composition of agricultural products, the composition and metallurgy of ores, or along such other line as may be of special interest to the student.

Owing to a demand for the same, it was decided, after consultation with the president of the institution, to considerably increase the lines of work offered in the chemical department.

The work of the chemical department of the experiment station from July 1, 1899, to July 1, 1900, was, in brief, as follows:

The sugar-beet work carried on during 1897 and 1898 was continued during 1899. In the spring of 1899 seed was sent to the substations and to a number of farmers in different parts of the Territory. In the fall samples of the beets grown from this seed were analyzed in the laboratory. The results confirmed the conclusions reached from the work of 1897–98. It is evident that a number of sections of the Territory can produce remarkably high-grade beets, both as to sugar content and purity. This has been found to be especially true of the section around Santa Fe, the Animas Valley in San Juan County, and portions of Mora and Taos counties. The sugar-beet work was very materially aided by the United States Department of Agriculture, which furnished seed for distribution and appointed the chemist special agent of the United States Department of Agriculture, thus enabling us to frank samples through the mail free of cost.

In cooperation with Prof. Elwood Mead, of the irrigation investigation work, Office of Experiment Stations, United States Department of Agriculture, a study of the water of the Rio Grande and Pecos rivers has been carried on. Samples were secured from these streams at regular intervals for several months and analyzed.

Besides the work mentioned above a considerable number of samples of water from different parts of the Territory have also been analyzed during the year. The results of this work, together with other data in regard to waters of the Territory that have been accumulating for several years past, and data from the cooperative work mentioned above, are published in bulletin form as station bulletin No. 34. This bulletin is now in press. Quite a large number of miscellaneous samples have also been analyzed during the year. These have included ores, natural fertilizing material, samples of natural saline deposits, a case of supposed poisoning of cattle, etc. In all, 189 samples have been analyzed between July 1, 1899, and July 1, 1900.

In July the chemist attended the meetings of the Association of Agricultural Colleges and Experiment Stations and Association of Official Agricultural Chemists, held in San Francisco. A technical paper relating to the analysis of beef was presented at the latter meeting. The chemist had the honor of being named as one of the members of the executive committee of the Association of Official Agricultural Chemists for the ensuing year.

In August the chemist prepared for the Office of Experiment Stations, for use at the Paris exposition, a history of the New Mexico Station from the time it was founded to August 1, 1899.

The equipment of the department within the time covered by this report has been maintained, but, owing to lack of funds, not materially increased.

DEPARTMENT OF ENTOMOLOGY.

For a number of years the entomologist had interested himself in the pigments of insects and plants without any particular expectation of economic results. Hence, when in May, 1900, Prof. E. O. Wooton drew his attention to the red coloring matter of the roots of the small boraginaceous plant *Eremocarya micrantha*, he was anxious to learn something of the properties of the pigment. A very brief investigation showed that the pigment belonged to the anthocyan series and that it behaved exactly like litmus, turning red in the presence of acids, blue in the presence of alkalis. The pigment was found to be superficial on the roots and readily soluble in cold alcohol. The plants were extremely abundant close to the college, the supply being apparently unlimited. From these and other considerations it seemed that we had here an excellent native substitute for litmus, which might very probably possess commercial value. Not only was the pigment purer than commercial litmus, but its preparation was very much simpler and the roots were easily obtained. The matter is now being further investigated by the division of botany, United States Department of Agriculture, and we shall doubtless be informed of the results before very long.

The summer of 1899 and the month of June, 1900, were spent in and about Las

Vegas. Most of this time was devoted to teaching, but considerable collections of insects were obtained, including a number of hitherto undescribed wild bees. The injurious insects observed in this region were few, the most destructive being the tent caterpillar (*Clisiocampa fragilis*), which ate up nearly all the leaves of the quaking aspens on the Pecos Forest Reserve. The cottony maple scale (*Pulvinaria innumerabilis*) was observed on shade trees in the streets of Las Vegas, but it did not seem to be seriously harmful or to increase so rapidly as it does in some of the Eastern cities.

The month of October, 1899, was spent in Salt River Valley, Arizona, in the service of the Arizona Experiment Station. The results of this trip have been mostly set forth in a bulletin published by the Arizona station. The cost was borne by the Arizona station, and $50 was paid to the New Mexico station on account of the work done.

One result of the Arizona investigations was of some importance to New Mexico. For the first time the entomologist was enabled to study the true Lower Sonoran Zone, and as the result of this to define the Middle Sonoran Zone of New Mexico more accurately than had hitherto been possible. It appeared that, as regards the native plants and animals, the Middle and Lower Sonoran zones were so similar as to be scarcely separable, but that the horticultural conditions in the two zones were almost entirely diverse. Hence the Middle Sonoran, which includes the Mesilla Valley of New Mexico, may be fairly defined as a zone having the native flora of the Lower Sonoran, with the cultivated products of the Upper Sonoran. It is hoped that these investigations may tend to reconcile the differences of opinion which have existed regarding the mapping of the zones in New Mexico and Arizona, and to prevent further confusion. As was noted in the paper of the preceding year on vernal phenomena, the indications are that we have in the Middle Sonoran a peculiar region, for which we should develop new and specially adapted varieties of fruits and other cultivated plants.

In the spring of 1900 experiments were begun with a new waterproof whitewash, which was applied to the trunks of fruit trees with the idea of filling up the cracks in which the larvæ of the codling moth pupate and, incidentally, of killing any scale or other pest on the trunk of the tree. Only a small quantity of the material was available, as, although an order was placed for a larger supply, for some unexplained reason the material was not received.

Spraying experiments with white arsenic for the destruction of the codling moth were begun in the experiment station orchard in the spring of 1900, and are still in progress. This work was planned in cooperation with the horticulturist and is being carried out by the horticultural department.

The most important new pest of the year was a beetle, an apparently new species of *Sphenophorus*, reported as very destructive to corn on the Upper Gila, both in New Mexico and Arizona. Inasmuch as the measures to be taken against this insect depend largely on the discovery of its natural (native) food plant, it is recommended that the entomologist be sent to investigate the matter on the spot at such time as may prove convenient.

Publications of the entomologist, July–Dec., 1899.

(1) Variations of Helix hortensis at Rockport, Mass. Nautilus, July, 1899, p. 32.
(2) Bifidaria armifera var. nov. ruidosensis. Nautilus, July, p. 36.
(3) Education by doing (Review of J. L. Tadd's New Methods in Education). Inland Educator, July, pp. 260–262.
(4) A troublesome pest. Albuquerque Journal-Democrat, July 14.
(5) (Letter on Hippodamia convergens.) Albuquerque Journal-Democrat, July 16.
(6) (With H. A. Pilsbry.) Ashmunella, a new genus of Helices. Proc. Acad. Nat. Sci. Phila., pp. 188–194.
(7) A first list of the Hymenopterous families Tenthredinidæ, Siricidæ, Chrysididæ, Proctotrypidæ, Cynipidæ, Chalcididæ, and Braconidæ, collected in New Mexico. Trans. Kansas Academy of Science, XVI, pp. 212–216.
(8) A reply to Mr. Marlatt's article on sources of error in recent work on Coccidæ. Science, July 21, pp. 86–88.
(9) Coccid pests on sugar cane. Bull. Miscell. Information; Royal Gardens, Kew, pp. 6–7.
(10) The New Mexico biological station. First catalogue New Mexico Normal University, pp. 50–52.
(12) (With H. A. Pilsbry.) Another new Ashmunella. Nautilus, Sept., pp. 49–50.
(13) Some notes on Coccidæ. Proc. Acad. Nat. Sci. Phila., pp. 259–275.
(14) A new Dactylopius (fam. Coccidæ) from Arizona. Canad. Entom., Sept., p. 267.
(15) A new Meloid beetle parasitic on Anthophora. Psyche, Oct., pp. 416–417.
(16) The Panurgine bees. Psyche, Oct., p. 419.

(17) (On the insect pests of Salt River Valley, Arizona.) Arizona Republican, Oct. 22, p. 8.
(18) Notes on Australian Coccidæ—3. Two new species and a new variety. Victorian Naturalist, Sept., pp. 88–89.
(19) Tables for the determination of the genera of Coccidæ. Canad. Entom., Oct., pp. 273–279; Nov., pp. 330–333.
(20) A new noctuid of the genus Cirrophanus. Canad. Entom., Oct., p. 288.
(21) (With P. J. Parrott.) (Description of Antonina nortoni, n. sp.) Canad. Entom., Oct., pp. 280–281.
(22) (Table for the separation of the forms of Aspidiotus allied to A. cydoniæ) in C. L. Marlatt. Science, Nov. 3, p. 658.
(23) Polygyra triodontoides (really texasiana, var.) in New Mexico. Nautilus, Nov., p. 84.
(24) New species of Andrena from Kansas. Entom. News, Nov., pp. 253–255.
(25) Psocus speciosus, Aaron. Entom. News, Nov., p. 266.
(26) The species of the bee genus Dieunomia. Entomologist, Nov., pp. 265–266.
(27) (With Wilmatte Porter.) Contributions from the New Mexico biological station, VIII. The New Mexico bees of the genus Bombus. Ann. & Mag. of Nat. Hist., Nov. pp. 386–393.
(28) The Coccidæ of Mauritius (Review of paper by d'Emmerez de Charmoy). Amer. Naturalist, Nov., pp. 899–901.
(29) Children and sugar beets: a parallel? Inland Educator, Dec., p. 204
(30) An alien clematis in New Mexico. Science, Dec. 15, pp. 898–899.
(31) A coccid from the Far North. Canad. Entom., Dec., pp. 369–370.
(32) (With Wilmatte Porter.) Contributions from the New Mexico biological station, VII. Observations on bees, with descriptions of new genera and species. Ann. & Mag. of Nat. Hist., Dec., pp. 403–421.
(33) Coccidology. (Review of E. E. Green, Coccidæ of Ceylon.) Natural Science, October, pp. 295–296.
(34) New Mexico biol. station. Natural Science, Dec., p. 463.
(35) New records of Coccidæ. Journal N. Y. Ent. Soc., Dec., pp. 257–259.
(36) Aleurodidæ. Biologia Centrali-Americana, Zoologia, Hemip.-Homop., vol. 2, pt. 2, p. 1.
(37) Coccidæ. Tom. cit., pp. 2–33.
(b) Han., Feb., 1900.
(38) The name Leonia. Psyche, Jan., p. 11.
(39) The danger of introducing insects on trees. Univ. of Ariz., Agric. Exp. Sta., timely hints for farmers, No. 7, Jan. 1.
(40) A horticultural quarantine bill. Albuquerque Journal-Democrat, Jan. 16.
(41) Winter remedies for injurious insects. Univ. of Ariz. Agric. Exp. Sta., timely hints for farmers, No. 9, Feb. 1.
(42) (With H. A. Pilsbry.) (Description of Zonitoides neomexicanus, n. sp.) Nautilus, Feb., pp. 114–115.
(43) Limas coccineus, gistel. Nautilus, Feb., pp. 117–118.
(44) What is the proper name of Lophyrus, Latreille? Entomologist, Feb., pp. 40–41.
(45) (Notice of Aquilegia desertorum) in M. Cooper. Southwest, Feb., p. 89.
(46) List of dipterous galls described from New Mexico. Southwest, Feb., p. 91.
(47) Notes on some Southwestern plants. Bull. Torrey Bot. Club, Feb., pp. 87–89.

SUMMARY BY SUBJECTS.

Entomology:	
Coccidæ	13
Bees	5
Other entomology	15
	33
Mollusca	7
Botany	3
Education	4

DEPARTMENT OF HISTORY AND PEDAGOGY.

During the scholastic year 1899–1900 the department of history and pedagogy has been a reasonably successful one. A class of about twelve students pursued the subject of general history during the whole year—four hours per week. The time was not sufficient to accomplish all that is generally expected of such a class. During the first and second terms a class of about ten students pursued the subject of elementary psychology practically applied. They took much interest in the subject, and, I doubt not, received lasting benefit. During the third term three young ladies took the subject of English history. This was an exceptionally good class, but, of course, the time was not sufficient to gain even an outline of this extensive subject. During the second term I had a class of three in the subject of advanced, or senior, psychology. A portion of this class had had one term's work in this subject previously. The class did very satisfactory work. The same students pursued the history of civilization in Europe during the third term, using Guizot's Lectures as a text. The class did excellent work.

DEPARTMENT OF MATHEMATICS.

The classes ranged from elementary algebra in the subfreshman year to the calculus in the junior year. The subfreshman class in algebra recited four times per week in the first and second terms, and five times a week in the third term, covering the subjects from simple simultaneous equations to logarithms, inclusive, in a high-school text-book. The freshmen studied plane and solid geometry daily throughout the year. About one-third of the time devoted to this subject was given to demonstration and solution of original exercises. Originals constitute a very important part of the examinations, since they are the true test of the rate at which the student is mastering this important branch of mathematics. The sophomores studied trigonometry daily during one term. The junior students in engineering pursued the study of analytic geometry daily during the first half of the year, and calculus during the remainder of the year. In calculus the methods of rates and of limits were employed.

DEPARTMENT OF SPANISH.

Spanish is optional with Latin in all courses in the first and second years, and is elective in the third year. This college has been quick to recognize and efficient in preparing for the great importance of Spanish in the education of the youth of the Territory. Being, as is Spanish, the language of the majority of the citizens of this Territory and that of the inhabitants of all the countries south of us on the American continent, it becomes almost a necessity, and a knowledge of it is of the greatest practical value. Owing to recent developments in our national affairs, as well as the increasing trade of this country with countries of Spanish-speaking people, that language has attained importance second only to English. Therefore this institution has provided courses which afford not only a literary knowledge of Spanish, but also competently prepare the student for work in commercial lines. There has long existed a great demand for Spanish-English stenographers, and the number there have been calls for at this college has been far greater than the supply.

The first and second years of Spanish are dedicated mostly to acquiring a thorough and general knowledge of the language, while the work of the third year looks especially toward such practical training, letter-writing, dictation, etc., as is of most benefit for business purposes.

In connection with the Spanish classes there is a class of Spanish-speaking pupils (in great part consisting of those from the neighboring Republic of Mexico), to whom Spanish is taught.

DEPARTMENT OF ZOOLOGY AND SOIL PHYSICS.

ZOOLOGY IN THE COLLEGE.

The following work was done in the department of zoology of the college:

The junior class met five hours per week for two months of the first term and studied the physiology of the bony system, circulatory system, and nervous system, using Martin's "Human Body," advanced.

The sophomore class worked five hours per week in the laboratory throughout the three terms. They studied the anatomy of several typical invertebrate animals, and spent the remainder of the time on vertebrate anatomy, studying in considerable detail the bony system, digestive system, and circulatory system. The parts were first demonstrated to students, and they then studied them under the supervision of the teacher.

SOIL PHYSICS AT THE EXPERIMENT STATION.

A. *Soil moisture.*—The observations on the moisture in the soil of the corn experiment, begun in the spring of 1899, continued until the corn was harvested, October 5, 1899.

These observations embraced the study of the per cent of moisture shown by the electrical soil hygrometer, together with monthly checks made by boring samples and determining the moisture by dryings. The results of the last season were tabulated and platted, and the most valuable part of the data is embodied in Bulletin No. 31, issued in cooperation with the Agricultural Department.

The electrodes were installed again in the same plats in May, 1900, and the observations are being continued in the same manner as during last season. Last season the moisture was measured at depths of 6 to 9 inches and 21 to 24 inches; this season the measurements are being made at 3 to 6 inches and 15 to 18 inches.

In addition to the above, samples have been taken in various other places on the station farm and their moisture content determined.

Weekly samples were received until October from the Aztec and Las Vegas substations, and their moisture content determined.

B. *Amount of water used in irrigation.*—Records were kept for the Division of Irrigation investigations of the United States Department of Agriculture on the amount of water used in irrigating the experiment-station orchard until December, 1899.

C. *Alkali and drainage investigations.*—Owing to the resignation of the agriculturist the proposed work on reclaiming alkali land by drainage was put in charge of this department. A month, during March and April, 1900, was spent at the Roswell substation on this work. About 4 acres of land, lying adjacent to the Hondo River, on the Roswell substation farm, was underlaid with tile. The experiment embraces the use of tiles of various sizes, laid at different depths and distances apart. Numerous samples of the soil on this plat and the adjoining land were taken, and the amount of soluble salt determined by the electrical method. This land will, after drying out, be flooded and allowed to drain until the amount of soluble salts is reduced to a point where they will not be injurious to plant growth. Various crops will then be planted on this land.

Numerous samples from the station farm have been tested for salt, but in no case has an injurious amount been found.

Considerable difficulty having been experienced in getting samples of the dry soils of the Rio Grande Valley, the writer has modified the ordinary wood auger by putting a movable brass casing on it. This device has proved very satisfactory.

D. *Meteorology.*—The meteorological instruments have been moved from the farm buildings and placed in and near the science hall. The usual observations have been taken by Mr. A. M. Sanchez, who has also rendered valuable assistance in the soil work, and reported to the New Mexico section of the United States Weather Bureau.

In addition to the regular meteorological observations, the rate of evaporation from a free water surface—a 3-foot cubical tank sunk flush with the ground—has been measured weekly.

E. *Miscellaneous.*—A portion of November and December, 1899, was spent, through the kindness of the chief, in the laboratories of the Division of Soils, United States Department of Agriculture, in Washington. This time was devoted mainly to the study of alkali problems. Several investigations bearing upon the alkali problem are under way, and data are being collected on the waters used in irrigation.

A press bulletin discussing the variability in growth of the alfalfa on the experiment-station farm was issued a short time ago. The correspondence relating to the work of this department has received the necessary attention.

DEPARTMENT OF STENOGRAPHY AND TYPEWRITING.

The enrollment in the above department during the past year has been larger than ever before in the history of the department. The class in stenography numbered 20 and the class in typewriting 21. Of those entering the classes most have completed the year's work, which has been satisfactory throughout.

The work in stenography has covered two hours a day throughout the year, and that in typewriting not less than one hour a day. Office practice, consisting of general office work, has occupied one hour a day through the third term. The examinations held at the close of each term have shown thorough and conscientious work.

In no previous year has the demand existing for competent English-Spanish stenographers been more apparent. For a number of years this department of the college has given more or less attention to the training of stenographers in both Spanish and English, and the calls made during the past year for young men and women competent to do stenographic work in both languages have been far more numerous than could be supplied. Before the close of the year's work 6 members of the class had left to accept positions, and others have gone out since. The salaries paid for English-Spanish stenographers are good, and the openings that exist in this line of work are usually such as to offer good opportunities for advancement.

It becomes more evident each year that the opportunities existing in this college for the training of stenographers in both Spanish and English are unique. The extensive use of the Spanish language by the inhabitants of this country and the character of the work done in the department of the Spanish in the college should both prove attractive to the many who are now seeking opportunities for gaining a practical and commercial knowledge of that language.

An exhibit of the work done in this department during the past year was made during commencement week, and later at the Chamber of Commerce building in El Paso.

The department of agriculture and horticulture has been reorganized under a professor who has received his training and gained his previous experience at one of the strongest agricultural colleges in the United States—that of Iowa. The farm has been stocked with well-bred cattle and the general equipment greatly improved, and the course of study has been so carefully arranged as to offer now one of the best proportioned courses in agricultural science that is provided in the United States.

Manual training of a highly educative type has been introduced into the preparatory department. Formerly there was practically no manual training for the student until he entered the collegiate department, and as childhood is the time to begin to acquire manual dexterity, this change is proving very beneficial.

The whole curriculum has been carefully gone over and improved. All of the collegiate courses that have been offered nominally for a number of years will henceforth be given, and well given. Lack of equipment has prevented the agricultural course from being what it should be in the past, and the same thing has been true of the civil engineering course. Our agricultural course is now a strong one, considerably superior to that of the average agricultural college. The civil engineering course is not yet as fully equipped as we would wish it to be, but a good course in civil engineering can now be given by expert teachers, and another year we hope to have the department in thoroughly satisfactory condition. The general or scientific course is now much richer in electives than formerly, and affords the youth of New Mexico an opportunity for an excellent education of a high order. What is known as a classical education we do not provide at all. Greek does not appear in our curriculum, and only so much Latin as is necessary for a good scientific education; but, except that we are still a little weak in modern languages, the education now afforded by this institution may well challenge comparison with that of the best schools and colleges not only of the West, but of America and of Europe.

The laboratories are unusually well equipped and are being added to continually. Several additions have been made to the equipment in the agricultural and mechanical engineering departments and in the departments of physics and chemistry, and the apparatus in the biological department has also been added to. In the new science building are located the chemical laboratories and lecture rooms, biological laboratory and lecture rooms for teaching anatomy and physiology, botanical laboratory, rooms for the entomological department, and the domestic economy laboratory. The building is an ornament to the place and fills a long-felt need. The hall for young women is now completely furnished and in use, and there is an excellent prospect for a hall for young men.

Many valuable experiments have been and are being carried on in the New Mexico agricultural experiment station (which is a part of this institution). Those relating to the cultivation and care of sugar beets have been especially satisfactory, and a large number of farmers in different sections of the Territory have cooperated in this work, with the result that it has been practically demonstrated that New Mexico can grow as fine sugar beets, running as high in sugar content, as are grown anywhere in the world. Perhaps the most valuable experiment now being carried on is that in subdrainage as a remedy for too much alkali—an experiment that is being conducted very successfully at our branch station in the Pecos Valley.

The college invites the patronage and confidence of the people of New Mexico because of its large corps of efficient teachers, its well-equipped laboratories, its unsurpassed location, and the genial climate of the section in which it is built, which makes it the finest college of its kind in the entire Southwest.

Board of regents of the college.—L. Bradford Prince, LL. D., Santa Fe, president; P. H. Curran, Las Cruces, secretary and treasurer; G. A. Richardson, Roswell; A. A. Jones, Las Vegas; P. Moreno, Las Cruces; Miguel A. Otero, governor, Santa Fe, exofficio; Manuel C. de Baca, superintendent of public instruction.

The officers of the college and experiment station for the year ended June 30, 1900, were as follows:

Frederick W. Sanders, Ph. D., president, professor of political and economic science, and director of the agricultural experiment station; Clarence T. Hagerty, M. S., professor of mathematics and astronomy; Arthur Goss, M. S., A. C., professor of chemistry, and vice-director and chemist of the station; Frank W. Brady, M. E., professor of mechanical and civil engineering; Ida M. Jones, professor of Spanish; T. D. A. Cockrell, professor of entomology, and entomologist of the station; Hiram Hadley, A. M., professor of history and pedagogy; E. O. Wooton, A. M., professor of botany, in charge of geology and physics, and botanist of the station; F. P. Barker, LL. B., professor of English and Latin; R. R. Larkin, B. S., principal of the preparatory department; J. D. Tinsley, B. S., professor of zoology, and soil physicist and meteorologist of the experiment station; Charles A. Keffer, professor of agriculture and horticulture to January 1, 1900; John J. Vernon, B. S. Agr., professor of agriculture and horticulture since May 1, 1900; Alice Harning, B. S., professor of domestic economy, dean of women, and matron of women's hall; Frank B. Lester, registrar, librarian, and instructor in stenography and typewriting.

Instructors and assistants.—R. Fred Hare, M. S., instructor in chemistry and assistant chemist of the station; Charles Mills, instructor in college shops; Ellen F. Gibson, instructor in elocution and physical culture, and assistant in the preparatory department; Mrs. Laura Frenger, instructor in music; Fabian Garcia, B. S., assistant in agriculture; Alfred M. Holt, M. S., second assistant station chemist; Joseph F. Bennett, jr., M. S., assistant in botany, geology, and physics, and assistant botanist of the station; Humboldt Casad, assistant in horticulture; Geraldine Combs, assistant in the preparatory department; Helen M. McGregor, stenographer and assistant stenographer; Florence G. Thornton, assistant in the preparatory department; Archie B. Sage, assistant in the mechanical engineering department; Charles E. Mead, B. S., superintendent of San Juan Valley Branch Experiment Station (Aztec); John S. Thornhill, superintendent of Las Vegas Branch Experiment Station.

The officers for the coming year are the same as given above, with the following additions and exceptions: Mr. W. M. Reed, C. E., has been appointed professor of civil irrigation engineering, and irrigation engineer of the experiment station; Messrs. Hare and Garcia have been promoted to assistant professorships, and the latter will be horticulturist of the station; Mr. W. A. Sutherland, B. S., has been appointed instructor in Spanish and Latin; Miss Charlotte A. Baker, assistant in English and librarian, and Mrs. L. L. Brown, assistant in the preparatory department. Professors Cockrell and Jones have resigned their professorships, and Miss Gibson her instructorship, but the former will continue to be consulting entomologist of the station. Professor Wooton's title will be professor of biology, instead of professor of botany; Professor Tinsley will be professor of soil physics, and soil physicist and meteorologist of the experiment station, and superintendent of the Roswell substation.

DEPARTMENT OF BOTANY.

[In charge of geology and physics.]

College work.—This department has under its charge the work in botany, geology, and physics. The work in each subject occupies one whole year of time, botany having the equivalent of six hours and the others five hours each week.

The method of teaching these subjects pursued is as much the laboratory method as facilities will permit, and it is possible to follow the method almost entirely in the subject of botany.

Students in this subject are supplied with good compound microscopes and all other necessaries for making a careful microscopic examination of different kinds of vegetable structures. Besides the laboratory work, a text-book is used as a guide, and both are supplemented by lectures.

The work in physics consists of lectures, with assigned text-book reading and demonstration experiments performed by the teacher and assistant in class. Strictly laboratory physical measurements, except of the simplest kinds, have not been possible, for want of the necessary apparatus, but much of the needed apparatus will be added during the summer of 1900.

The work in geology comprises a term in mineralogy and lithology, a term in dynamical and structural geology, and one in historical geology and paleontology. A rather large assortment of minerals is placed in the hands of the students for study, and some work in determinative mineralogy is attempted. A small collection of fossils is used in the work of paleontology.

The department has excellent quarters for botanical work in the new science hall, and the work in geology is temporarily placed in one of these rooms until it is possible to arrange suitable accommodations for a museum. The physical laboratory, in the engineering building, furnishes good accommodations for this work, and will be much better when it is thoroughly equipped for student laboratory work.

Experiment-station work.—On account of the large amount of teaching in charge of this department, not a very great deal of experimental work has been done the past year. A study of the flora is being carried on, with the ultimate purpose of the publication of a manual of the flora of the Territory, and to this end plants are being collected at all times and preserved in the college herbarium. This herbarium is now of some size, and is fairly representative of the flora of the Territory, besides containing some other plants received from different parts of the United States. Some studies of the distribution of plants have been made, with the design of making a life-zone map of the Territory.

The summer of 1899 was spent in the field in the Sacramento Mountains making collections of plants in localities never before visited by a botanist. The season's trip has yielded between 3,000 and 4,000 specimens of dried plants, of which it is believed that several are new.

The head of this department is particularly anxious to become acquainted with the various investigations in the botanical field of this Territory, and offers his services for the identification of plants and the answering of general questions relative to this subject.

All such inquiries should be addressed to E. O. Wooton, botanist, experiment station, Mesilla Park, N. Mex.

LOCATION.

The New Mexico College of Agriculture and Mechanic Arts is situated at Mesilla Park, Dona Ana County. Its location in the Mesilla Valley gives it great advantages for agricultural experiments, and is a good one from a sanitary point of view. The valley is noted for being the largest fruit and alfalfa shipping point in the Territory, and is rapidly becoming known as perhaps the finest winter health resort in the United States. The college farm is crossed near the center by a fine driveway from Mesilla Park station to the college buildings. Visitors are always welcome. Mesilla Park is on the main line of the Atchison, Topeka and Santa Fe Railroad and is easily accessible from different parts of the Territory. Las Cruces, a town about 2½ miles distant, has a population of about 3,000 inhabitants. It has a public school, two mission schools, and a Catholic academy for the education of girls. The Presbyterians, Methodists, and Roman Catholics have church organizations, and students are always welcomed to their services.

ORIGIN.

The New Mexico College of Agriculture and Mechanic Arts, under a slightly different name, was established by the twenty-eighth assembly of New Mexico by act approved February 28, 1888. The purpose of the institution is defined in section 19 of this act:

"The agricultural college created and established by this act shall be nonsectarian in character, and devoted to practical instruction in agriculture, mechanic arts, natural sciences connected therewith, as well as a thorough course of instruction in all branches of learning bearing upon agriculture and other industrial pursuits."

The branches in which instruction may be given are set forth as follows in section 20 of the same act:

"The course of instruction of the college hereby created shall embrace the English language, literature, mathematics, philosophy, civil engineering, chemistry, animal and vegetable anatomy and physiology, the veterinary art, entomology, geology, and political, rural, and household economy, horticulture, moral philosophy, history, mechanics, and such other sciences and courses of instruction as shall be prescribed by the regents of this institution of learning."

By section 25 of the same act the assent of the legislative assembly was given to the establishment of experimental stations within the Territory of New Mexico in connection with the agricultural college, in pursuance of the act of Congress approved March 2, 1887—the Hatch Act.

INCOME.

The revenues of this college are derived from the following sources:

1. Students' fees.
2. Sale of college farm products.
3. Territorial tax and special appropriations.
4. The United States, under Congressional act of August 30, 1890—the Morrill fund.
5. The United States, under Congressional act of March 2, 1887—the Hatch fund.

The money received from students and from the sale of products from the college farm has so far been very limited and has been applied to the payment of such expenses as are not provided for by either act of Congress.

NEW MEXICO APPLES.

The Territorial act creating the institution provided for an annual levy of one-fifth of a mill, commencing with the year 1888. This levy now yields an annual income of about $6,500.

The Morrill fund was created by the United States law of August 30, 1890, "for the more complete endowment and support of the colleges of agriculture and mechanic arts in the several States and Territories." It is paid over to them before July 31 of each year. The college received this fund first in 1888, to the amount of $15,000. Henceforth the fund will amount to $25,000. This fund can be applied only to "instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic sciences, with special reference to their application in the industries of life and to the facilities for such instruction." No part of this fund may be used for building or repairs or for ordinary running expenses, such as salaries of administrative officers—as president, clerk, librarian, etc.—equipment of the library, and ordinary furniture, stationery, printing, etc., or for teaching any subject not referred to in the act. The theory of the Federal Government, in accordance with which these appropriations have been made, is that the State or Territory must provide the buildings and grounds and keep them in repair, and must also provide for all the general administrative expenses of the college, and that the Federal appropriation is to be used only for the purpose of paying teachers and supplying the necessary books and apparatus for teaching the specific subjects mentioned in the act.

By the United States law of March 2, 1887, the Hatch act, appropriations are made for the maintenance of experiment stations in connection with agricultural colleges in the several States and Territories. For the support of each station there is set apart the sum of $15,000 a year, payable quarterly. This money must be used for "paying the necessary expenses of conducting investigations and experiments and printing and distributing the results." Bulletins showing progress must be printed each quarter and sent to each newspaper in the Territory and to all farmers who apply for them. This fund first became available for the college in 1889-90 to the amount of $10,000. Since July 1, 1890, $15,000 a year has been received. After the first year only 5 per cent of this fund may be used to erect, enlarge, or repair buildings for the use of the experiment station, and no part of it may be applied to the expenses of instruction or to general college purposes. It must be applied exclusively to the carrying on of agricultural experiments and to the dissemination of the results thereof.

ENDOWMENT.

A bill has recently been passed by Congress granting this college 100,000 acres of public land, the proceeds of which are to form a permanent endowment fund. If this land be carefully located, it can be made to yield the college in time a fair endowment.

FREDERICK W. SANDERS, *President.*

NEW MEXICO MILITARY INSTITUTE.

HISTORY.

The New Mexico legislature of 1893 passed an act to establish a military school at Roswell, in Chaves County, but did nothing toward providing for its maintenance until 1895, when a donation of 40 acres of land from Mr. J. J. Hagerman was accepted for a building site.

The legislature of 1895 authorized an annual Territorial tax levy of twenty one-hundredths of one mill for the school's maintenance and the issue of bonds to the amount of $15,000 for the erection of suitable buildings. But as Congress failed to approve the acts of this legislature until the spring of 1897, the regents could do little more than inclose a plot of ground, secure plans for buildings, and wait until the bonds could be negotiated.

The bonds were negotiated in June, 1897, and the contract for the buildings was let and the work begun within a month thereafter. In March, 1898, the buildings were accepted by the regents, and by the following summer the barracks and schoolrooms were completely furnished and ready for occupancy.

A superintendent, corps of instructors, domestics, and necessary employees were secured, and the school was finally opened for the admission of students in September, 1898, at a total cost to the Territory of something less than $30,000.

The school, thus organized and equipped, took during its first session over one hundred students and earned in tuition fees something over $9,000. On the first day of session 1899-1900 the quarters for cadets were filled to their utmost capacity and students were refused admittance. The regents began at once a second residence building, filling it before ready for occupancy. They expect to erect shortly another large building, thus providing quarters for 50 more cadets. The school earned $11,000 from tuition fees, session 1899–1900. In every respect it has far exceeded the most sanguine expectations. The superintendent of public instruction for New Mexico, after his official visit in April, 1899, declared:

"The Military Institute at Roswell is an institution of which every New Mexico citizen has reason to be proud. The school must now be considered the leading educational institution of New Mexico."

As required by law, the adjutant-general makes at least one official inspection annually. In his report to the governor he said:

"The inspection was made on the 8th day of May, 1899, and was as thorough in every respect as the same could be made. The notice to the superintendent of the intended inspection was received by him on the same day as my arrival at Roswell, so that there was but little time for preparation, and the conditions I found must necessarily have been the ordinary or normal condition of the institution. I inspected every room in the building, beginning with the dormitories, and found the bedsteads used were of cast iron, made for one person, each room being occupied by two students. I tumbled the bedding off and closely examined the mattresses and bedding and found the same fresh, clean, and free from vermin. The floors and walls of the buildings throughout showed most cleanly care. Especial attention was given to an examination of the closets and the drainage therefrom. I found that a sewer pipe had been extended from the school building in a southeasterly direction to the river, affording perfect drainage from the closets and bathrooms. The plumbing seemed to be in perfect order, and I was unable to detect any bad odors in or about the closets, or about the entire building.

"I made a close examination of the groceries and provisions found on hand, and in every instance found the quality excellent and free from adulteration. I dined at the institute and was served with the same kind of food that was given the students. I found the food plentiful, well cooked, well seasoned, and, in fact, just such a dinner as may be found in the homes of people of middle life all over the country. * * *

"The college building is a handsome, substantial structure of brick, containing three stories and a basement, situated about one-half mile from the business center of Roswell. The grounds extend over 40 acres of land overlooking the town, and the situation is a beautiful and healthy one. The building contains 30 nice, airy, wholesome bedrooms, besides class rooms, office, kitchen, dining room, pantry, laundry, bathroom, and closets. The furnishings are substantial and comfortable. The recitation rooms are equipped with excellent twentieth century chair desks, which are said to be the most comfortable now in use. The building is heated by steam throughout from a large boiler in the basement, and there is a good supply of hot and cold water on every floor. The building is lighted by an excellent acetylene plant, located about 100 feet away. The water supply is furnished from a tank of 10,000 gallons' capacity, which is kept filled by means of a steam pump.

"An examination of the course of study reveals the practical nature of the school. Four years of preparatory work are required, so that any student can enter who knows how to read, write, spell, and apply the fundamental rules of arithmetic. The preparatory course is followed by four years of collegiate work. The studies are such as are usually found in institutions of like character. The text-books in use in the preparatory course are those adopted for use in the Territorial public schools. In addition there is taught the art of war, theoretical tactics, the manual of arms, and, in fact, everything usually taught in high-class military schools. Especial attention is paid to proper gymnastic exercises and reasonable and healthful athletic sports necessary to the physical, mental, and moral good of the students. * * *

"The eminent success of the institute in this, the first year of its existence, gives great encouragement for the future; this hope, however, may be frustrated by a failure to make prompt provision for its immediate necessities and for its expansion. Already the dormitories are filled to the limit of their capacity. There are 30 students in attendance who live or board in Roswell, outside of the institute. I regard it of the utmost importance and necessary to the success of the institute that all students should reside in the barracks. * * *

"There is an immediate demand for more commodious quarters. The institute should be provided at once with 30 more bedrooms, a room for a library, gymnasium, society halls, and storehouse. The laundry should be removed from the basement and placed in a separate building. I am aware that much of this can not be accomplished without legislative authority, but if there exists authority in the board of regents to provide for the more pressing needs of the institute by the construction of a temporary board structure, I should strongly recommend its exercise."

The New Mexico legislature of 1899 ordered an annual Territorial tax levy of twenty-seven and one-half one-hundredths of one mill for the institute's maintenance, which levy should produce an income of from $10,000 to $12,000 per year. The permanence and financial solidity of the school is thus established beyond controversy, for while the expense of maintaining the institute will never fall short of $20,000, the earnings and appropriations from the Territory have been thus far ample for its maintenance. Under recent act of Congress the school has 50,000 acres of land from which, it is hoped, a considerable income will be realized.

LOCATION.

The New Mexico Military Institute is located in Chaves County, just beyond the corporate limits of the town of Roswell, but within less than a mile from the courthouse. It would be difficult to find a better location for a military school. The school buildings are 3,700 feet above the sea, the best altitude obtainable, and for solid comfort and thoroughly modern conveniences are in keeping with the natural advantages. Few of the Eastern boarding schools are so snugly built or so well furnished. The town of Roswell has a population of 3,000 people, cultivated, law abiding, sober, and industrious. Most of the leading denominations have well-organized churches. The town maintains excellent graded schools. The moral and social influences are necessarily good. Roswell is on the Pecos Valley and Northeastern Railroad, which connects with the Texas and Pacific Railroad at Pecos and with the Santa Fe and the Fort Worth and Denver Railway at Amarillo, Tex. It is also reached by a daily stage line from Lincoln, N. Mex., and a triweekly stage from Fort Sumner.

The climate is incomparably perfect; the air is pure and bracing; the water excellent; there is very little snow and no rain during the entire session, and not a day when the sun does not shine. It is thus possible for the student to spend a large part of his leisure time out of doors, nor is it ever necessary to remit the military exercises on account of wet or inclement weather.

The Pecos Valley is celebrated throughout the world as a health resort, and the abundant supply of fresh water from the great springs and artesian wells at Roswell renders the town one of the most desirable places for residence in the Union.

The school has considerable patronage from Eastern States. Boys of weak lungs, delicate constitution, or health impaired by malaria or nervous disorders soon become strong and vigorous when placed at the New Mexico Military Institute. Sixty cadets boarding in the school from September to December, 1898, showed an average gain of 15 pounds in weight and nearly 1 inch in stature. During the same months in 1899, even better growth was obtained. All cadets, upon entrance, are carefully examined by the surgeon of the New Mexico Military Institute, and measurements carefully recorded. It is therefore impossible for latent diseases to escape prompt attention.

Special pains are taken to give plenty of good, wholesome food, clean, comfortable quarters, and as good a living as can be found at any school of the kind in the world.

The superintendent, instructors, and their families are required to live at the institute, and take their meals in the mess hall with the cadets. The mess hall seats 70 people at the tables and is completely furnished. The kitchen and laundry outfits are the best of their class, and easily feed and care for 100 people daily.

BUILDINGS AND FURNISHINGS.

The total amount expended for fixtures and furnishings somewhat exceeds $35,000. The institute barracks are of brick, trimmed with red sandstone, three stories, with gray stone basement, the four floors all lighted by gas, heated by steam, with hot and cold water on every floor, perfect fire apparatus throughout the building, lavatories and baths, modern water-closets, and a complete system of waterworks and sewerage. The regents, during 1899, built and furnished, in addition, an excellent ten-room dormitory and a five-room residence.

The schoolrooms and section rooms are on the first floor and are furnished with best adjustable chair desks and folding seats.

The furnishings of the cadets' bedrooms are substantial and well adapted to their needs. Each student has a first-class (iron) bedstead, mattress, and pillow; each room two beds, a table, chairs, washstand, etc. There are no large dormitories, where several dozen sleep and live together; two students are put into a room. There are 30 bedrooms in the main building, 10 in the larger cottage, and 5 in the residence proper, affording lodging for the instructors, domestics, and 75 cadets.

No expense has been spared to make everything thoroughly good, substantial, and comfortable. Few hotels can afford more genuine comfort. The grounds embrace 40 acres of level land.

Besides the barracks and residence buildings within the 10-acre inclosure are the power house, gas house, a large 10,000-gallon tank, the 6-acre parade ground, and ample space for exercise and recreation. The grounds have been planted with trees and set in Bermuda grass.

COURSE OF STUDY.

Experience has demonstrated that at present four preparatory classes are necessary in addition to the four usual collegiate classes. Cadets holding county appointments must be able to enter the fourth or lowest collegiate class, for it is not usual that an appointee will hold his commission longer than four years, and it is to the interest of all concerned that the appointee should finish the entire course to graduation.

In order to enter the fourth class, the applicant must have a fair knowledge of English grammar, arithmetic, United States history, geography, some knowledge of algebra, and should be able to read aloud intelligently and spell correctly.

Other students will take such classes as they may be prepared for, but all county appointees must enter at the fourth class.

The preparatory classes are for the present maintained especially for the benefit of young boys or poorly advanced students old enough to do sometimes two classes within a single year. After a few years they will be abolished and all students must be able to take the fourth class.

The entire course of study is as follows:

PREPARATORY CLASSES.

Class A.—Spelling, reading, geography, language lessons, arithmetic, writing.

Class B.—English grammar, spelling, reading, arithmetic, geography, United States history, writing.

Class C.—English grammar, reading, spelling, United States history, arithmetic, physical geography, writing.

Class D.—English grammar, arithmetic, spelling, algebra, general history, physiology.

Collegiate classes.

FOURTH CLASS.

First term.	Second term.	Third term.	Times a week.
Algebra	Algebra	Algebra	5
	Geometry	Geometry	5
Rhetoric	Rhetoric	Rhetoric	3
English history	English history	English history	3
Spanish	Spanish	Spanish	5
Latin	Latin	Latin	5
Drawing	Drawing	Drawing	3

THIRD CLASS.

	Geometry	Trigonometry	3
Geometry	English literature	English literature	5
English literature	Spanish	Spanish	5
Spanish	Latin	Latin	5
Latin			5
	Trigonometry	Surveying	3
Drawing	Drawing	Drawing	3

SECOND CLASS.

Analytical geometry	Analytical geometry	Analytical geometry	5
Spanish	Spanish	Spanish	3
German	German	German	3
Latin	Latin	Latin	3
Physics	Physics	Physics	3
Tactics	Tactics	Tactics	5

FIRST CLASS.

Calculus	Calculus	Calculus	5
Astronomy	Astronomy	Spanish history	3
Geology	Geology	Geology	5
Chemistry	Chemistry	Chemistry	5
German	German	German	3

MILITARY SYSTEM.

One of the greatest educators of our country declares: "A distinctive military system tends to muscular development and physical health by an enforced regularity in food, sleep, and exercise. It creates habits of promptitude, order, discipline, and subordination. It fosters self-reliance and force of personal character by removing all extraneous distinctions and by casting each youth, whatever his antecedent circumstances, on his own individual responsibility. It is equal, uniform, and wholesomely restraining, without rigor." This has been the verdict of history. The best teachers of the country favor it as conducing to better discipline, better work, better health, and better citizenship. In preparatory schools of every order it is in some form always desirable. In the busy West, with its imperfect system of secondary schools, it is almost indispensable in securing best results.

Governments, corporations, and individuals are unanimous in expressing a preference for young men who have received such training, and under present political and industrial conditions there is a stronger demand for such training than ever before in the country's history.

The far-reaching effects of the present national policy are likely to have no parallel, unless it be the British Government in India.

For this cause the New Mexico Military Institute lays especial stress upon military training and a perfect mastery of the Spanish language, designing to fit young men for that peculiar form of civil life upon which it would seem probable that large numbers would shortly enter—men who know thoroughly the two languages of the Western Hemisphere, able to become soldiers within a few hours, trained to systematic habits and business methods, educated sufficiently well to manage any form of business intrusted to them, and morally reliable as well as intellectually and physically competent.

While, for the present, the enforcement of really burdensome military requirements will not be attempted, the fact must never be ignored that this is primarily a military school. There is nothing in which young boys may not pleasurably and profitably participate. At the same time a regular commandant will reside in the barracks and have charge of them day and night. Frequent inspections are made by the commandant in person, and the usual military discipline rigidly enforced. The school has 80 Springfield rifles and accouterments, and ample facilities for target practice and firing exercises. At least one hour daily, six days in the week, is devoted exclusively to military exercises on the parade ground, and on Sunday the cadets must parade for inspection and march to church.

Daily routine.—Reveille, 6.20 a. m.; room inspection, 6.50 a. m.; breakfast, 7 a. m.; study call, 8 a. m.; first dinner call, 12 m.; dinner, 12.10 p. m.; study call, 12.40 p. m.; first drill call, 4.50 p. m.; drill, 5 p. m.; supper, 6.10 p. m.; study hall, 7 p. m.; tattoo, 9 p. m.; taps, 9.30 p. m. Saturday: Battalion inspection, 9.30 a. m.; battalion parade, 5.30 p. m. Sunday: Church, 10.30 a. m.

ATHLETIC EXERCISES.

The conception of a soldier who is not reasonably able-bodied or is physically a coward is almost absurd. Vigor, endurance, hardihood, and courage are essential factors in his life and training.

While cadets are not permitted to neglect either their studies or their military duties for games, sports, and recreative exercises, they are encouraged to so spend all their leisure time. It is nearly as important to keep busy as to become strong. Certain exercises are compulsory. All cadets must box and fence under the regular instructors. The instructors are employed to coach the football, baseball, and tennis teams, for which excellent provision is made. Regular instruction is also given in wrestling, tumbling, running, throwing, jumping, and vaulting.

During session 1899–1900 the cadets had a strong track team and an excellent baseball team. Both made the best records of the year among Southwestern schools. Athletic exercises not only tend to make vigorous, robust, and self-reliant men, but perhaps nothing so powerfully conduces to create an enthusiastic college spirit.

North Spring River, less than half a mile distant, affords good swimming and rowing. People have bathed daily for years in this warm spring water—winter and summer; there are not ten days in the year when all sorts of gymnastic exercises would not be possible in the open air.

Owing to the abundance of vigorous exercise, sound food, clean baths and quarters, busy life, and wholesome restraint, the health of the cadets is superb. The effects are noticeable upon boys of all ages, the strongest and the weakest.

Great care is taken as to sanitary arrangements and the health of cadets. A regular surgeon is employed and a regular hospital maintained, for it is important, not only to take care of the sick, but to train nurses. Whenever a boy is unfit for duty or reported ill, he is sent to the hospital and put under the school physician. It is thus impossible for him to feign illness on the one hand or suffer neglect on the other.

Track team.—Capt. W. E. Davis, manager; W. D. Mangam, coach; Cadet P. D. Headrick, Cadet M. L. Kelley, Cadet Marvin Livingstone, Cadet Edwin Bowie, Cadet R. B. Seay, Cadet J. W. Chaves, Cadet A. N. Garrett, Cadet Homer Vivian, Cadet Peter Frank, Cadet Walter Daugherty, Cadet Thomas Crumpacker.

Baseball team.—Capt. W. E. Davis, manager; Charles McDonald, coach; Cadet P. D. Headrick, catcher and captain; Cadet H. W. S. Otero, p.; Cadet Albert Sisk, 1 b.; Cadet Alfonso Romero, 2 b.; Cadet Walter Daugherty, 3 b.; Cadet L. F. Jones, s. s.; Cadet Jack Cowden, r. f.; Cadet Leo Wattelet, c. f.; Cadet Thomas Crumpacker, l. f.; Cadet Homer Vivian, Cadet Edwin Bowie, Cadet Peter Frank, Cadet Asa Draper.

SOCIAL AND RELIGIOUS INFLUENCES.

At stated periods, with permission of the regents, the cadets are allowed to entertain the public in barracks.

Parents and guardians are permitted to pay short visits to their wards at the institute, in which case they are the guests of the superintendent.

Cadets will not be allowed to visit Roswell, or leave the inclosed limits for any cause whatever, except by special permission of the superintendent, nor may such permission be granted, save at stated hours in the afternoon.

On Sundays cadets must attend the church designated by their parents. If there is no such denomination in Roswell, the cadet may attend any church he desires. If neither he nor his parents desire him to attend any church in Roswell, he must march to town on Sundays with the battalion and return under command of the officer detailed for the purpose.

Cadets will be allowed to attend any designated Sunday school upon the written request of parents, but will not be allowed to attend services at night.

The New Mexico Military Institute is the property of the Territory, built and maintained by the people. It has nothing to do with political parties or religious denominations. While the general moral welfare of the cadets is looked after, it is both unjust and unwise to risk bringing the school under political or sectarian influences, however good in themselves, because in such matters the best people differ very widely, and the institute belongs to the whole people.

COUNTY APPOINTMENTS.

Under the act of 1895, "each county in the Territory may, through its county commissioners, by competitive examination, or in some other manner to be determined by such commissioners, appoint one student annually, who shall, without any charge for matriculation or tuition, receive, during the year for which such student shall have been so appointed, instruction in the regular courses taught in said institute."

Cadets holding these appointments receive free of charge their tuition, board, room, and furniture. They must buy their uniforms, books, and wearing apparel, and, like other cadets, furnish their own napkins, towels, bedding, etc. Upon entrance they must deposit with the treasurer of the board of regents, $25 for laundry, $10 for the surgeon, $5 for breakage, and $10 for incidentals—a total of $50.

The appointee must be free from disease or serious physical blemish and of good moral character.

Entrance examinations will be held in the study hall of the New Mexico Military Institute at the opening of each session, and will be set to appointees and alternates who present their certificates from county commissioners.

Commissioners should always name at least one alternate who may take the place of their appointee in case of his failure, resignation, death, or expulsion for misconduct.

Commissioners must notify the regents of appointments on or before July 15 of each year.

NECESSARY EXPENSES.

The necessary expenses of a cadet not holding a county appointment at New Mexico Military Institute from September to June are as follows:

Tuition and maintenance	$200.00
One suit uniform, $7 to	19.00
Books and stationery	6.00
Clothing, bedding, and spending money	25.00
Total	250.00

Maintenance includes board, lodging, laundry, and medical attendance and all fees due the New Mexico Military Institute for the entire session of three terms.

The sum of $200 is payable upon entrance. A student who enters for less than the entire session must pay at the rate of $250 per session.

No student will be received for a shorter period than a half session, and in case a student is entered for a half session only the sum of $125 must be paid at entrance.

It is best that each boy should have two suits of uniform his first year; thereafter one suit and an extra pair of trousers should suffice. A large number of cadets get through their first year on one suit and an extra pair of trousers.

The uniform is the braided West Point fatigue suit, gray blouse and trousers, and blue cap. The best costs the cadet $19 for coat, trousers, and cap.

Two pairs of good shoes should suffice for the session.

REQUISITES.

Each cadet should bring from home or buy in Roswell the following articles: Four sheets for single bed, 3 pillow cases, 1 pair heavy blankets, 1 comforter, two clothes bags, 6 towels, 6 napkins, 6 handkerchiefs, 6 white standing collars, 4 soft colored shirts, 2 suits underclothing, 4 pairs socks, 1 brush and comb, 1 tooth brush, 1 clothes brush, 1 blacking brush and blacking, 1 napkin ring, toilet soap, matches.

All articles must be marked with owner's name. Garments to be laundered must be marked with indelible ink on outside. Full name of owner must be written—initials or abbreviations will not suffice. Cadets will not be allowed over fifteen pieces of laundry each per week. No unmarked clothes will be received for laundry. The laundry is now done by a steam plant in Roswell.

SPENDING MONEY.

No cadet should be allowed over $1 per week, and 25 cents per week is enough for young boys. It is best to send spending money to boys monthly in form of a regular allowance.

Shoes, wearing apparel, and necessaries should be sent from home or the money for them sent to the superintendent in the form of a check or post-office order, made payable to the boy's order, and he should be required in every case to send a receipted bill of the articles. But articles will not be bought for students until money for them is sent. Parents are advised to pay no bills made by cadets in town without their written authority, and merchants are warned to give no credit to cadets without such authority. Neither the school nor its officers can undertake to collect bills for merchants or pay them for students.

A deposit of $25 should be made upon entrance for uniform and necessary text-books. The school provides neither uniforms nor books. Swords and regalia of cadet officers must be paid for by the owners. When a parent is in doubt about the advisability of sending a boy money, it is best to write to the superintendent.

The officers of the institute are forbidden to lend money to cadets or buy goods for them on credit, even at request of parents. It has been found injurious to the school. Parents must send money in advance for clothing, books, and necessaries.

EXAMINATIONS AND REPORTS.

Students are carefully graded on each recitation; at the end of each month an average is made of the recitation marks. At the end of each three months a written examination is held, and this examination is counted as a fourth month. Reports are sent to parents and guardians after each examination and the percentage recorded on each report is one-fourth the sum of the three monthly averages and the examination mark. The number of demerits indicates the conduct of the cadet. Any cadet who receives as many as one hundred demerits must be withdrawn.

HOW TO REACH ROSWELL.

Students coming overland from the interior should come by private conveyance or stage from Lincoln or Fort Sumner. Coming by rail, they should take the Pecos Valley and Northeastern Railway at Pecos on the south, and Amarillo, Tex., on the north; in either case they will reach Roswell in the daytime and should come straight from the depot to the institute. Students must report to the superintendent within four hours after arrival in Roswell.

MILITARY INSTITUTE AT ROSWELL AND ITS RECORD.

As there seems little doubt but the Pecos Valley road will shortly build its extension from Roswell to El Paso, it is worth while to note the phenomenal rise of New Mexico's school of arms located there.

Never in the history of Western education has any school attained within so short a while such well-earned reputation. Founded only two years ago, it is to-day unquestionably the strongest boys' training school in the Southwest. Last session it was simply first among the first in everything. Its students not only learned books, and really went to school, but did everything else equally well. The New Mexico Military Institute ball teams and track teams were the best in the whole West; the military work receives high compliments from every army man; the commissary is praised by the best hotel men.

Truly, it is a remarkable piece of organization and management. New Mexico has made serious mistakes with most of her Territorial institutions; most of them have been models of impractical theories and of incompetent management. But the military institute at Roswell is the proud exception. The school has been fortunate in having a body of regents who were at once honest men and business men. They had more good fortune in their choice of a superintendent. Colonel Meadors is a man of affairs. He is a good scholar and a ready writer, a fluent speaker, and very energetic. It is doubtful if the West holds his equal as a school canvasser.

He knows printer's ink as few men do; his little circulars, etc., are perfect gems of concise business English. His photograph outfits are delightfully original and very effective. He is a fine mixer, and has by far the largest acquaintance of any of the schoolmen. The result is that the New Mexico Military Institute is getting students from Minnesota to Mexico and from Dallas to San Francisco. It is the only school in the Southwest not chiefly supported by local patronage; several towns in western Texas each send more students than Roswell.

But the school itself is well worthy of a good canvasser. The management of all departments exhibits the same energetic and business-like methods. There is an earnestness of purpose and an honesty of action about the New Mexico Military Institute that commends it to all classes of people; the school grows every day in public esteem, and has a strong future.

Its location could not be surpassed; the climate is almost perfect; all appointments and equipments are strictly modern and the very best. The fees, $200 per year, are lower than at any school of the kind in the Union. The six instructors are all graduates, and honor men at that, of the very best colleges in America and Europe; and one familiar with the history of Western education, and especially New Mexico schools, finds himself astonished at discovering what this school has accomplished with the money at its command.

The school is a credit to New Mexico, and well worthy of the liberal patronage it is receiving from all parts of the country.

NEW MEXICO SCHOOL OF MINES.

Socorro, N. Mex., *September 1, 1900.*

Dear Sir: In compliance with your request, I hereby submit my annual report of the New Mexico School of Mines, to wit:

The New Mexico School of Mines is a Territorial institution, founded by the Territorial legislature in 1889.

The act creating it provides that the school of mines shall be supported by an annual tax of one-fifth of a mill on all taxable property within the Territory. This levy was increased by the Territorial legislature in 1889 to twenty-seven and one-half hundredths of a mill.

The legislature located the school of mines at Socorro, the county seat of Socorro County. Its campus consists of 20 acres of level meadow land, within the irrigable district, 1 mile west of the Rio Grande and 1 mile northwest of the railroad station. The laboratory building is situated nearly in the center of these grounds.

Socorro, a city of about 4,000 inhabitants, is on the western slope of the Rio Grande and on the main line of the Atchison, Topeka and Santa Fe Railway, about 75 miles south of Albuquerque and 180 miles north of El Paso, Tex. It is at an elevation of about 4,500 feet above sea level, and, having a salubrious climate, is preeminently a pleasant and healthy location. Socorro is an attractive city for health seekers from the East who need a mild and dry climate; every year many persons seek its hospitalities. In the city are two hotels, several good boarding houses, two large public school buildings, and a court-house that cost $45,000. Mount Carmel Convent and a mission school and a representation of nearly all the church denominations are other features of Socorro.

Socorro has one of the best public waterworks in the Territory, furnishing a very soft, pure, and healthful water. The supply comes from hot springs that issue from the base of the Socorro Mountains, about 4 miles west of the city. Two weekly papers are published here. There are also a brewery, artificial ice plant, roller-process flouring mill, and a fire-clay works, which manufactures the best fire-clay and building bricks in the Southwest.

The pure air and water, cool mornings and evenings, high elevation, and absolute freedom from malarial influences are some of the climatic conditions with which Socorro is favored, and which are essential for thorough and systematic study. Living expenses here are as low as in any other city in the West. While some of the schools of mines in the East charge $200 or more per year for tuition, this institution only charges its students the nominal tuition fee for materials consumed.

The New Mexico School of Mines enjoys the natural advantages of being located in the midst of a region peculiarly rich in minerals of nearly all kinds, and is within easy reach of the most varied geological conditions, all of which are within a radius of 20 miles of Socorro.

Almost the entire geological column, from the precious metal bearing formations of the Archæan to the coal beds of the Tertiary, is here exposed. The industrial processes connected with mining and metallurgy may also be seen at Magdalena, Kelly, San Pedro, Hillsboro, Cooks Peak, Silver City, Los Cerrillos, Gallup, Carthage, and elsewhere within easy reach of the school. These illustrate the most modern methods of mining, milling, ore dressing, concentrating, smelting, lixiviation, cyaniding, etc., as well as the native Mexican processes, which are worthy of a careful study, since the like can not be seen elsewhere in the United States.

The grounds immediately adjacent to the school of mines include open plains, plateaus, and mountain formations, all affording an excellent field for practice in surveying, laying out of railroads and irrigating canals, topography, geology, and mine engineering. Hence, students may be prepared at the very doors of the school in actual practice in these branches, which usually require tedious and expensive excursions from Eastern schools of mines.

The field for original scientific research in New Mexico is unrivaled by any other mining section, and the opportunities here offered are not neglected in the plan and scope of instruction. It is proposed that much of the advanced professional work of the school shall be of an original nature, to the end that the graduates may be skilled theoretically and practically in the very problems which they, as professional men, will be called upon to solve.

During the session of 1899–1900 there were employed in the school of mines 2 professors and 3 instructors. There were 48 pupils in attendance. Of these 32 were males and 16 were females. Of the males 5 were natives of the Territory. There were 9 pupils from outside of the Territory of New Mexico. Twenty-three per cent of the entire attendance were in the technical departments of the school.

There were 3 graduates in the preparatory department and 5 graduates in special courses of assaying, etc. No graduates of full degrees.

The school is now in a healthy condition, and the coming session has every indication of being the most prosperous one in the history of the institution.

The following is a statement of the receipts and disbursements of the New Mexico School of Mines, as furnished by Mr. C. T. Brown, secretary of the board of trustees, to wit:

July 1, 1899, to balance		$334.86
Received from Territory		8,459.14
Received from laboratory supplies		390.07
Received from tuition		273.50
Received from assaying		274.25
Total receipts		9,731.82
Disbursements:		
Salaries	$5,103.26	
Incidentals	1,780.50	
Supplies	458.02	
		7,341.78
Balance July 1, 1900		2,390.04

The friends of the school are now hopeful that it is soon to receive such Federal aid as will make it possible to place the institution on a much higher plane of usefulness than is possible under present conditions. The first session of the Fifty-sixth Congress took the preliminary steps toward extending to the mining industry the same aid that is now extended to that of agriculture.

Several bills were introduced, all having the same object, that of giving Federal aid to stimulate and promote scientific research in the various branches of mining and metallurgy. The friends of these bills finally united upon one introduced by

Senator Tillman, which passed the Senate without a dissenting vote and was reported upon favorably by the committee to which it was referred in the House.

All friends of the measure feel warranted in believing that this bill will become a law at the adjourned session of the present Congress in December. The Tillman bill provides for an annual appropriation to schools and departments of mining and metallurgy, beginning with $10,000 and increasing by $1,000 each year until $15,000 is reached, at which sum the appropriation is to remain a permanent fund.

The healthy inquiry now coming to the New Mexico School of Mines concerning the various mines and districts of the Territory, by its citizens and Eastern capitalists is conclusive evidence that the public have every confidence in the school and that all regard the same as the most reliable authority which can be obtained in the Territory.

Respectfully submitted.

F. A. Jones, *Director*.

Hon. Miguel A. Otero,
Governor, Santa Fe, N. Mex.

THE SCHOOL OF MINES.

The New Mexico School of Mines is a Territorial institution, founded by the Territorial legislature in 1889. Several of the States of the Union, far less bountifully blessed in the line of minerals than New Mexico is, early recognized the advantages that would accrue from institutions of this class and made haste to establish such institutions, and have since given them a liberal support. Long before 1889 New Mexico was known to be exceedingly rich in mineral resources. It did not require, therefore, great insight to recognize the importance of establishing within the Territory a school in which should be taught the most scientific methods of mining and treating such ores as were known to exist in abundance, and such other ores as would doubtless be discovered later. The wisdom of the Territorial legislature in establishing such a school has been amply vindicated.

Object of the school.—The object of the institution is set forth specifically in section 28 of the act creating it, as follows: "The object of the school of mines created, established, and located by this act is to furnish facilities for the education of such persons as may desire to receive instruction in chemistry, metallurgy, mineralogy, geology, mining, milling, engineering, mathematics, mechanics, drawing, the fundamental laws of the United States, and the rights and duties of citizenship, and such other courses of study, not including agriculture, as may be prescribed by the board of trustees." The scope of the work thus prescribed is broad enough to include all means necessary to the attainment of the object of the school. On account, however, of circumstances connected with the public-school system of the Territory, a later legislature found it necessary to provide for a preparatory course by which students could be fitted for the technical work of the institution. Such a course has since been maintained.

Supported by the Territory.—The creating act provides that the School of Mines shall be supported by an annual tax of one-fifth of a mill on all taxable property within the Territory. It was thought that this levy would give the institution an income of about $10,000 a year, but it was not until 1893 that a special appropriation was made for a suitable building to enable the school to be organized in accordance with the policy of this act, and the great financial panic of that year so reduced the assessed valuation of property within the Territory that the school's income was reduced to only about one-half of the amount anticipated. However, the last Territorial legislature generously and wisely increased the levy for this purpose to twenty-seven and one-half one-hundredths of a mill.

Federal aid expected.—The friends of the school are now hopeful that it is soon to receive such Federal aid as will make it possible to place the institution on a much higher plane of usefulness than is possible under present conditions. The first session of the Fifty-sixth Congress took the preliminary steps toward extending to the mining industry the same aid that is extended to that of agriculture. Several bills were introduced, all having the same object, that of giving Federal aid to stimulate and promote scientific research in the various branches of mining and metallurgy. The friends of these several bills finally united upon one introduced by Senator Tillman, which passed the Senate without a dissenting vote and was reported upon favorably by the committee to which it was referred in the House. All friends of the measure feel warranted in believing that this bill will become a law at the adjourned session of the present Congress in December. The Tillman bill provides for an annual appropriation to schools and departments of mining and metallurgy, beginning with $10,000 and increasing by $1,000 each year until $15,000 is reached, at which sum the appropriation is to remain a permanent fund.

New Mexico School of Mines at Socorro.

Location of the school.—The school of mines is located at Socorro, the county seat of Socorro County. Its campus consists of 20 acres of level land about a mile and a half northwest of the railroad station. The laboratory building is near the center of these grounds.

The city of Socorro.—Socorro is a city of about 4,000 inhabitants, situated about a mile west of the Rio Grande, on the main line of the Atchison, Topeka and Santa Fe railroad, 75 miles south of Albuquerque and 175 miles north of El Paso. It has an elevation of 4,600 feet above sea level. The climate is mild and dry and exceedingly healthful. The water supply comes from a warm spring that issues from the base of a mountain about four miles west of the city. A careful chemical analysis has shown this water to be exceptionally pure and wholesome.

A good location.—In addition to climatic attractions the School of Mines enjoys the natural advantage of being located in a region peculiarly rich in minerals of nearly all kinds. It is also within easy reach of the most varied geological conditions. The industrial processes connected with mining and metallurgy may be seen at Magdalena, Kelly, Hillsboro, Cooks Peak, Silver City, Pinos Altos, Rosedale, in the Black Range, and at other places not difficult of access from Socorro. In these camps may be seen illustrated the latest methods of mining, milling, concentrating, smelting, chlorination, etc., as well as the native Mexican methods, which are worthy of a careful study, since the like can not be seen elsewhere in the United States.

Original researches.—The field for original scientific research in New Mexico is unrivaled by that of any other mining section. The opportunities thus offered are not neglected in the plan and scope of instruction at the School of Mines. It is designed that much of the advanced professional work of the school shall be of an original nature to the end that graduates may be skilled theoretically and practically in the very problems which they, as professional men, will be called upon to solve. While this plan of instruction is designed to furnish material for practical and original research on the part of advanced students, it is believed that it will also be of great practical utility to the industries of the Territory, and that in an important sense the school shall have for its students not only those who may study within its walls, but also the greater part of the mining population of New Mexico.

The laboratory.—The plans and specifications of the laboratory represent the most modern requirements of a technical school, as developed by the Massachusetts Institute of Technology, the Columbia College school of mines, and other similar institutions. The building is 135 feet long by 32 feet deep, with a central rear assay wing 32 feet wide by 54 feet long. It is a one-story building of gray trachyte, trimmed with red sandstone; has a basement complete, and a central pavilion three stories high; is well ventilated throughout, and has all modern conveniences. The entire building is finished in oiled hard pine, except the assay rooms, which are finished in fire-proof material. The completed structure cost $43,940.43.

Interior arrangement.—The main floor contains the office, private laboratory, qualitative and quantitative laboratories, balance room, evaporation room, stock room, and laboratories for fire and wet assaying. The qualitative and quantitative rooms are supplied with convenient working desks, each of which is supplied with water and gas. The balance room is supplied with quantitative assay and ore balances of Becker's finest construction; the fire assay room is complete in every respect; the library and reading room is provided with standard works of reference, and the engineering department is equipped with a full set of instruments for field work.

A complete course.—The School of Mines offers a complete technical course, extending through a period of four years, in each of the following departments, viz: Chemistry and metallurgy, mining engineering, and civil engineering. For the benefit of those who are unable to complete a full course, short special courses also are offered in assaying, prospecting, and surveying. These courses have much to commend them, and many young men of the Territory have availed themselves of the opportunity to complete one of them in one session. The preparatory course is designed primarily to fit students for the technical courses, but it offers besides considerable other work of such a character as is commonly done in high schools.

Expenses are moderate.—The expenses connected with attendance at the School of Mines are moderate. A tuition fee of $5 a session is charged for preparatory students, $10 a session for technical students, payable at the time of matriculation. Good board can be had at from $15 to $20 a month. Students can maintain themselves on $200 a year if they are willing to economize.

A gold medal.—As an inducement to special effort, Mr. C. T. Brown, of Socorro, secretary and treasurer of the board of trustees, offers a gold medal to the student showing the greatest proficiency in assaying, chemistry, and metallurgy during a full year's work. This medal was awarded last year to Carl J. Homme, of Wittenberg, Wis.

A flourishing institution.—The New Mexico School of Mines is in a flourishing condition, and doing valuable work for the Territory. The attendance last year was large, and a still larger attendance is assured for the coming year. Of the several graduates last spring in special courses, all but two or three, who are expecting to to pursue their studies further next year, have responsible and desirable positions with mining companies. The improved scientific methods that are now so generally employed in mining operations, and the widespread attention that is given to mining industries, have created a great and lasting demand at good salaries for young men with a technical knowledge of mining and metallurgy. It is not unreasonable to expect that with the Federal aid which is anticipated the School of Mines is soon to become not only the chief agency in the education of the young men of New Mexico, but also the most potent factor in the development of the greatest industry of this great Territory.

NEW MEXICO NORMAL UNIVERSITY.

LAS VEGAS, *June 27, 1900.*

Hon. MIGUEL A. OTERO,
Governor of New Mexico:

Pursuant to your instructions, I beg leave to submit the following report of the New Mexico Normal University for the year ending July 1, 1900:

This institution has just completed its second year's work, having opened its doors October 3, 1898. The annual catalogue, a copy of which is herewith transmitted to you, shows an enrollment of 203 students in the normal university proper, 39 in the kindergarten, and the enrollment in the model schools connected with the normal school is not counted. The attendance at present exceeds that of many Eastern normal schools. It is worthy of especial mention that ten States are represented in the enrollment for this year, a fact which indicates that the educational institutions of New Mexico may expect a large patronage from Eastern States as soon as they offer a high grade of instruction and ample facilities for advanced work.

The future of this institution was assured by the farseeing policy of the regents, who have been charged with its affairs from the beginning. It is located in the center of one of the most enterprising little cities in the West, making it easy of access and insuring it a strong local support. The community in which the school is located is one that fully appreciates the value and influence of such an institution, and shows that appreciation in most substantial ways. The climate is ideal for study all the year round. There is no institution in America more fortunately located in that respect. Great wisdom was also shown in the planning and construction of the building, a cut of which is herewith furnished you. It is a massive sandstone structure, built throughout alike for architectural beauty, durability, and convenience. The first floor furnishes ample accommodations for a model school of 200 children, the manual training department, heating plant, and janitor's quarters. The second floor accommodates the library, departments of pedagogy, psychology, sociology, and art, recitation rooms, offices, and retiring room. The third floor contains the assembly room, with seating capacity of 400, laboratories for biological and physical sciences, and rooms for departments of history, literature, languages, and mathematics. The fourth floor contains the museum and physical culture room, with closets for the storage of apparatus and collections.

In choosing the faculty the management has from the beginning sought to insure a high standard by selecting men and women from the best educational institutions of the land. This policy brings New Mexico into direct touch with the best educational thought of the times, and enables our young people to procure at home the advantages which formerly they were compelled to seek at great expense abroad.

The scope of the institution has been determined by the various legislative acts pertaining to it and the manifest needs of the people of New Mexico. It is embraced in the following departments:

1. *The normal school.*—This is the central feature of the organization. Its purpose is to educate teachers for the public school service. The problems of primary and secondary education in New Mexico are unique in many respects. To deal with these problems is the special province of the normal school. The proposition has been laid down and generally accepted that "the function of the normal school is to educate teachers for the schools of the State. The State supports the public schools for the education of its children. It supports the normal school that its children may have better teachers." Accordingly, the work of the normal school has been planned to meet our peculiar conditions. The regular course is a course of two years above the high school. It is strictly a professional course of the highest grade adopted by any normal school in the United States, and leads to a life certificate to

teach in any of the public schools of New Mexico. It is intended for those who are to serve as grade teachers in town and city schools. The elementary course is a training course in the common branches, designed especially for those who are to teach in rural schools. It embraces two years' work, but is so planned that country teachers may come in for a term or more and receive considerable benefit. It should be especially noted that in connection with the normal school a system of model schools is maintained, consisting of classes of children of all grades from kindergarten to high school, and taught by the most expert teachers that can be secured. This furnishes a pattern school, after which the schools of the Territory may be modeled as to organization, methods of instruction, etc., since it is based upon the most approved systems in use in the States. It is held that good health is more important in the teachers' profession than in almost any other. Consequently, no student will be considered a candidate for graduation from the normal or post-graduate courses who is affected with any deformities that are unsightly or detrimental to the daily work of the teacher, serious defects of sight, hearing, or speech, any transmissable disease, or any serious nervous or organic disorder.

2. The graduate school.—This consists of a two years' course of professional training above the regular normal course, thus furnishing to those who take both courses four years of professional training of university grade. It is intended especially for critic teachers, principals, and superintendents.

3. The academic school.—This department is devoted to general education. It is a four years' course above grammar grade and is equivalent to the preparatory courses offered by the best schools of the country. It comprises English, classical, Latin, scientific, commercial, and manual training courses. These are designed to be good finishing courses for those who will go no further, and good preparatory courses for those who wish to continue their studies in normal school, university, or technical and professional schools. The work of this department is placed upon a high standard, for the reason that it forms the basis for whatever the student is to do in the future, either in pursuing studies in higher institutions or in the work of life outside of schools.

4. The manual training school.—This department was established this year pursuant to the act of the thirty-third legislative assembly creating it as a branch of the New Mexico Normal University. It is designed to carry out the provisions of that law, which provides that the object of the manual training school shall be to instruct pupils and prepare teachers to teach the use of hand and tools in the various arts of practical value to the people of the Territory. A large number of pupils have already availed themselves of the manual training courses, and much good is to be expected from the introduction of this line of education among all classes of our people. The value of hand work in the development of mind and character has come to be almost universally recognized.

I wish particularly to call your attention to the fact that the standards of work and scholarship set for every department of this institution are equal to the highest set for similar departments in the best schools of the United States, and that those standards are scrupulously adhered to. It is felt that no other policy would in the end be acceptable to the people of New Mexico. A great responsibility rests upon the management of a normal school because of its relation to the whole public school system of the State. Its relation to the kindergarten, primary grammar, and high -schools is such that all its influence and power must be used for their improvement. It exists for the public schools and the children who attend them. It must set the standards for primary and secondary education and send out teachers that can raise the schools up to those standards. It must also cooperate to the fullest extent with the university and other higher institutions in promoting higher education. The New Mexico Normal University is working toward those ends as rapidly as its means will permit.

The president wishes to express his grateful appreciation of the hearty cooperation of the legislative assembly, board of regents, faculty, student body, and community, and also of your administration in the upbuilding of this institution.

Respectfully submitted.

EDGAR L. HEWETT, *President.*

NORMAL SCHOOL OF NEW MEXICO.

SILVER CITY, N. MEX., *May 20, 1900.*

MY DEAR SIR: In obedience to your request, I herewith submit a report of the Normal School of New Mexico, giving a brief account of its history, its work, and its condition.

The school is just closing the sixth year of its existence, and therefore has had time to accomplish somewhat the aim for which it was established. Its normal department was created at the beginning, and has continued to become more and more professional in its character. The enrollment has increased from about 35 the first year to 88, the enrollment this year.

While the school has been and is a great convenience for Silver City, the surrounding sections have been largely represented in the attendance. At least 40 per cent are non-residents, and 65 per cent of those graduated have been from abroad. Seventy per cent of those who have graduated taught in the schools after their graduation.

In order to conform to the conditions in this new country the school, like other institutions of its kind in the West, carries forward business and academic departments, as well as that of the professional. The professional department receives the emphasis, of course. Many of those who enter the school to pursue the academic branches only end by taking the professional course. This is shown by the list of graduates. Out of the 41 graduated thus far, but 1 has completed the academic course. It therefore is not "a high school for Silver City," but is performing well the purpose for which it was created.

Since our last report several new features have been added to the school, thus increasing its efficiency as a normal school. A training department has been organized and a competent principal placed over it. This gives pupil teachers an opportunity to be trained in the actual experience of the school. This training embraces not only work in the grades, but a course of kindergarten instruction as well. Our professional training, then, is both theoretical and practical. The former consists of a thorough course of psychology, child study, history of education, school systems, and school law, general and special methods, school economics, and educational theses, all of which require one full year's work. The latter consists of a course in primary methods and daily practice work under expert criticism.

We hold to the normal school idea of teaching the common branches, not only that the student may become more thoroughly grounded in them, but that he may know the best methods of teaching them. Indeed, every class and every department is instructed in the pedagogy peculiar to the study pursued.

The present levy is sufficient to meet the current expenses of the school by judicious management. How best to expend the special appropriation granted by the last legislature is a problem now before our board of regents to solve. The school needs more room, as well as better facilities for operation. Whatever is done will be that which is the most imperative at the time and the most consistent with the advancement of the school's interest and that of the Commonwealth which created it. Two things must be kept in mind, the demands of the present and the demands for the future. Our present needs must be served, and at the same time a firm foundation for the future must be laid. That our authorities will meet both these requirements I have no doubt.

I therefore have the honor of reporting to you that our school has been advancing in interest and all other respects this year as it has not done before, and express the hope that it will continue to do so.

Very respectfully submitted.

C. M. LIGHT, *Principal.*

Hon. M. A. OTERO,
Santa Fe, N. Mex.

A NEW MEXICO CHAUTAUQUA.

Schools, both public and private, will reopen next month for the fall and winter terms throughout the Territory. The time has arrived, therefore, for resuming the agitation for a Chautauqua, or summer school, for teachers or others, to be established preferably at Santa Fe, which offers the best summer climate of any city in New Mexico. The Colorado Chautauqua at Boulder is a great success, and so are other summer meetings of teachers in other states. In the Santa Fe Canyon a large auditorium could be built, and around it a city of tents would spring up for six or eight weeks every summer. The attractions of the upper Pecos would be near by, the cliff dwellings within a day's journey, and the historical and archæological collections at Santa Fe within near reach. Such a summer meeting would not only draw crowds from New Mexico, but from hot and sandy Kansas and Texas and even Colorado, for the double attraction of a cool, delightful summer spent amidst glorious scenic surroundings, together with a summer school led by such educators as Professors Hewett, Herrick, and others, who are making for themselves a name in the educational world, would be greater than any other Chautauqua could offer. Texas is coming to New Mexico to establish a Chautauqua at Cloudcroft, and New Mexico should be equally progressive and establish its Chautauqua at Santa Fe.

The Territorial Educational Association will meet at Santa Fe in December of this year. It meets at a time of the year when most people prefer to be at their own fireside and do not care to travel. The annual meetings that the association hold are not only interesting but important. It would be desirable therefore to draw a much larger attendance from all over the Territory than has been the case at the past meetings. The best plan would be to change the date of the meeting to July or August, and to fix the place permanently at Santa Fe, whose summer climate alone would attract many people to the meetings. Such a change would be the beginning for a New Mexico Chautauqua, which in time would become famous beyond the boundaries of the Territory.

Santa Fe should have a board of trade which would take hold of the project and would provide the means for making a start in providing Chautauqua grounds and an auditorium. It would greatly add to the prosperity and reputation of the capital city and would be an enterprise that would pay in dollars and cents. Now is the time to act.

DEAF AND DUMB ASYLUM.

SANTA FE, N. MEX., *June 30, 1900.*

SIR: Complying with your official request of the 1st instant, asking for a "full report of the condition" of the Asylum of the New Mexico Deaf and Dumb, we have the honor to submit the following:

At the time the present board took charge of the management of the asylum, April 10, 1899, the school was being conducted by Lars M. Larson as superintendent and Mrs. Lars M. Larson as matron, with an attendance of 7 Territorial pupils, under arrangements made by our predecessors; there were no funds available to pay the teachers or anything else. Our board deemed proper to allow the school to continue until the last day of May, 1899, under the contracts made by our predecessors.

From June, 1899, to the 1st of April, 1900, there was no school for want of funds. The buildings were in bad condition and in great need of repairs. There was no school stationery, such as school register, blanks for applications, reports, etc. We determined to remedy this evil by appropriating a sufficient sum of money the moment we received the first money from the Territory, which was January 31, 1900, to order the most necessary and indispensable repairs, provide the asylum with all the necessary records and stationery and other things absolutely required to save the property and insure the comfort of the employees and children. The walls were kalsomined, window shades were put in all the windows, the lumber work painted, electric light (light furnished by the penitentiary authorities, under the law) furnished, a chemical fire extinguisher placed within the building, a bathroom with two good and modern tubs was fixed up, and a good and substantial coal and wood shed built, and the superintendent furnished with a letterpress book, etc., as well as such other stationery as his office requires. All this was done without any unnecessary delay, and as soon as it was done we opened a short term of school, commencing April 1 and to continue till June 30, 1900, with 4 pupils in attendance and in charge of the same superintendent and matron. Of these 4 pupils only 1 pays for his board and washing—$10 per month; the other 3 are paupers and the Territory pays for them. Preparations are being made to have a good school at the next term, which will commence the first Monday in September, 1900.

The receipts and expenditures from all sources from April 10, 1899, to the present are as follows:

Receipts		$2,553.33
Disbursements.		
Paid Mr. and Mrs. Lars M. Larson, salary and board of pupils	$927.80	
Paid for records, stationery, postage, printing, etc	172.20	
Repairs, electric light, insurance, fuel, etc	640.15	
		1,740.15
Balance on hand		813.18

Since the school was officially established in March, 1887, the following Territorial pupils have attended: Maude Bogue, Agustina Rodriguez, Matilda Howard, Pedro Sandoval, Harry Goldsmith, N. Armijo, J. Armijo, ——— Miller, ——— Torres, ——— Weber, W. Hern, Pablo Gonzales, ——— Duran, H. Harp, ——— Blea, Annie Williams, ——— Trujillo, ——— Anderson, A. Pino, ——— Cleveland, Hugh C.

Franks, Ed Lovato, L. Sanchez, M. Morse, M. Morgan, Ghomer E. Morris, and E. Pino. Total, 27, from March, 1887, to end of present term, June 30, 1900.

The following Navajo Indians have also attended the school at the cost of the Government of the United States: J. B. Salazar, Juana Rodriguez, Angelina Casias, and Margarita Casias.

In our former report we informed your excellency of the kind and value of real and personal property belonging to the asylum, and for that reason we did not deem it advisable to again mention the same facts, unless your excellency should so desire it.

Respectfully submitted.

MRS. T. P. GABLE, *President.*
BENJAMIN M. READ, *Secretary.*

Hon. M. A. OTERO,
Governor of New Mexico.

UNITED STATES INDIAN INDUSTRIAL SCHOOL.

SANTA FE, N. MEX., *May 14, 1900.*

SIR: In compliance with your request in your letter of the 3d instant, I respectfully transmit information concerning this school, as follows:

The Santa Fe Indian school was opened in October, 1890, with a capacity of 150 pupils, and in January, 1894, was created a normal school.

The school farm consists of 106 acres, which was donated to the Government by the citizens of Santa Fe, N. Mex. Only 10 acres, consisting of 5 acres of school campus and 5 acres of garden, are under irrigation.

There are 18 buildings, mostly of brick, well and substantially built, devoted to school purposes.

Number of months school is maintained	12
Number of instructors	32
Pupils enrolled	335
Average attendance of pupils	300
Total receipts	$57,800
Total expenditures	57,800
Value school buildings	55,093
Total amount paid to instructors	20,640

Industries taught are cooking, housekeeping, tailoring, sewing, blacksmithing, engineering, carpentering, laundering, baking, painting, nursing, and farming and gardening by irrigation.

Authorized improvements for fiscal year 1901:

For addition to school building	$6,600
For electric lights	4,500
For additional warehouse	2,000
For water and sewerage	2,000
For repairs and improvements	3,000
Total	18,100

Respectfully submitted.

C. J. CRANDALL, *Superintendent.*

Hon. MIGUEL A. OTERO,
Governor of New Mexico, Santa Fe, N. Mex.

MESCALERO INDIAN AGENCY AND MESCALERO BOARDING SCHOOL.

MESCALERO, N. MEX., *June 30, 1900.*

SIR: I have the honor to submit herewith my annual report for the fiscal year ending June 30, 1900.

Mescalero Apache Indian Reservation contains 474,240 acres, and is situated in the northeastern corner of Otero County, N. Mex. Otero County is located in the southeastern portion of the Territory of New Mexico, and was recently formed from parts of Dona Ana, Socorro, and Lincoln counties. The agency and boarding school are located 18 miles from Tularosa, N. Mex.; our telegraph, express, and freight station on the El Paso and Northeastern Railway, 100 miles northeast of El Paso, Tex. The agency is reached from the railroad by stage or private conveyance any day except Sunday; time, four hours. We are supplied with a mail service from Tularosa, N. Mex., once daily, except Sunday.

United States Indian School at Sante Fe, N. Mex.

The reservation lies in the Sacramento and White Mountains (Sierra Blanca), has an elevation of from 5,000 to 13,000 feet, and is composed of narrow canyons, rolling table-lands, and precipitous and rugged mountains. The higher table-lands and mountain sides are covered during the summer and fall months with an abundant growth of grass, good for pasturage, but in the winter months these lands are covered with several feet of snow, while during the spring months they are covered with dead grass, left from the previous year. This serves as an excellent cover to hold the rainfall, which usually appears about the middle of May or the 1st of June. The mountains and higher elevations in the southern portion of the reservation are covered with dense forests of fir, black and silver spruce, Alpine aspen, sugar and yellow pine (Pinus ponderosis), scrub oak, locust, and various briers. The fir grows to an immense size, is wind shaken, rotten, soft, and of very little or no commercial value; the aspen is valueless; the scrub oak makes very fair firewood, but is of no value for any other purpose except as forest cover and a very valuable conservator of moisture; the pine is the most valuable lumber tree and is used by the Indians and the school for the construction of buildings, for repairs, etc. For finishing or other fine grade of work this pine is too soft and is practically valueless.

The narrow valleys are fertile, but contain no water, with the following exceptions: Nogal, Silver Spring, Elk Spring, Tularosa, Carrizo, Rinconada, Tres Ritos, and Ruidoso. The Tularosa flows 570 cubic feet per minute; the Ruidoso, 500 cubic feet; Silver Spring, 38 cubic feet; Nogal, Elk Spring, Carrizo, Rinconada, each about 18 cubic feet, and the Tres Ritos 100 cubic feet per minute.

Measurements were made in May, 1900, during the dry season, rain not having fallen on any portion of the reserve since April 5, 1900, and then only in very small amounts. On other portions of the reservation there are small springs, but during part of the year they are dry or else do not flow a sufficient amount of water to measure. No portion of the Ruidoso on the reserve is farmed or used for any purpose, as it rises at the foot of White Mountain peak and runs east between precipitous mountains, leaving no room for ranches. The Indians have located their ranches in the following watered valleys: Tularosa, 34 ranches and the school farm of 200 acres; Silver Spring, 14 ranches; Elk Spring, 36 ranches; Nogal, 5 ranches; Carrizo, 9 ranches; scattering, 8 ranches, with 3 sheep ranches in the Rinconada. In addition to the above, mountain regions on this reservation form the source of the water supply of the Bonito, Eagle, Cedar, and Hondo creeks. The Ruidoso, Carrizo, Hondo, Bonito, Eagle, and Cedar streams are tributaries of the Pecos River. On all the streams named there are ranches aggregating a large area which are entirely dependent upon these mountains for water. To supply these streams with water sufficient to irrigate the crops and water the herds of these ranches nature has reserved a vast reservoir in the shape of over a half million acres of rugged bowlder and forest covered mountain lands to hold winter's snows and summer's torrential storms till they trickle down slowly to water the hot, parched, and grateful valleys and plains far below. The rain, retarded by vegetation, including forest trees and their cover, sinks into the loose formation and breaks out at lower elevations as springs. Artesian water in the vicinity of Roswell unquestionably has its origin in the Sacramento and White mountains.

All arable land on the reservation has been taken up by the Indians, and, though small in area compared with the great extent of territory, it is all the land that is of any value for farming or grazing, on account of the scarcity of water. All available springs and streams, even wet-weather springs, have been taken up and are being utilized.

The geological formation of the reserve is as follows: Fifteen townships south, limestone; one township west, red sandstone; and the remaining four townships northwest, granite. The only favorable indications of mineral are a few dykes of porphyry, there being no veins of quartz. Not a trace of any valuable mineral has been found in the thirteen eastern sections or townships. Thirteen hundred assays of specimens taken from the remaining townships, collected from the surface to 75 feet below, has not revealed any mineral in sufficient quantities to warrant any person desiring to locate a mineral claim on this reserve if it were thrown open for mineral entry.

The statements made in former reports that this reservation contained gold and silver in paying quantities is not borne out by the facts gleaned from an extensive and exhausting investigation.

This reservation should not be thrown open for public settlement or mineral entry for the following reasons:

There is no mineral that could be used profitably. The mineral resources of the reserve are nil.

There is no part of the reservation that could be homesteaded for agricultural purposes not needed by the Indians. All the water is being used by the Indians.

Extensive inquiry among the actual citizens in the vicinity of the reservation who have agricultural and stock interests develops the fact that, with few exceptions, they are very much opposed to having the reserve opened to public settlement, stating that such an act would ruin their water supply, by permitting the timber to be cut off and the land to be overstocked. It is a well-established fact that the cutting of timber extensively and the overstocking of mountain lands causes droughts and extinction of springs. In this country, and I speak from personal observation and experience, the cutting of extensive areas of timber has the following effect: The laps, tops, brush, etc., dries and burns off, causing the death of absolutely every particle of vegetation over the logged area. Rains fall on this ground, washing every particle of soil off the hillsides, leaving the ground covered with stones. This land does not grow up again in forest. The rains in this country are torrential in character, the extreme difference in the temperature of the plains and the mountains causing very violent downpours and hailstorms. These storms falling on deforested lands run off as they would off a tin roof, flow down the narrow valleys in great floods, causing destruction to beautiful ranches, homes, and even herds of cattle, and depositing millions of tons of débris and silt on good valley land. Before the timber was cut this rainfall would be checked by the timber and forest cover, the ground would not become compacted, the flow of water would be checked by vegetation, absorbed by the loose earth, decayed roots and mulch, and trickle down slowly to supply numerous springs below. Evaporation would be continued from the wooded area for months. On this reserve there is an area that was cut and burned over twenty years ago. It has not yet grown up to forest, nor has it any indication of doing so. It is now covered with scrub oak and locust bushes. No portion of it is covered with annual or perennial grasses. Fresnal Valley, in township 16 south, range 12 east, just on the reservation line, was logged in 1898 and 1899. Not only were the trees cut but small saplings were cut for tramway ties and other purposes. No disposition was made of the laps and tops and during the summer of 1899 a forest fire, doubtless started by the sparks from the locomotives, swept the entire logged district. The mountain sides were swept clean of vegetation and the ground left bare without shrub or grass to retard the run-off consequent to the annual summer rains. The result was that the first hard rain caused a serious flood in this valley. The water rushed from the denuded hills as from a house roof, and carried wood, logs, and even the railway track down to the wider portion of the valley below, covering good agricultural land with tons of débris and silt. Great and irreparable damage was done the agricultural and stock interests of the valley and also of the portion of the plain watered by this valley. The condition of the country this year is appalling. In 1898 this land was included in a forest reserve, which was then opened to public settlement upon the representation that it was needed for homestead purposes. A railroad was built into the region to remove the timber, but no new homesteads have been taken up for agricultural purposes within that area. A very small per cent of the land is fit for agricultural purposes. That had already been taken up, and we have not witnessed "a large influx of thrifty Dutch farmers," not one. "Script" has been filed on the land and the timber removed.

In a less marked degree the effect of overpasturing forest lands may be seen in various places near the reserve, but more particularly just north of the reservation. Thousands of sheep and goats were seen there last year and this. The grasses, shrubs, etc., are just about literally annihilated; the mountain floors present a general broken condition and are scarred with deep washes. On the reserve the forests have been protected from timber cutting and overpasturage, and the mountain floors are unbroken, and the ground is well sodded with annual and perennial grasses and covered with forests. Wherever sheep in large numbers have been pastured for a few years these conditions do not exist, and just north of the reservation there are thousands of acres overgrown with weeds, where originally grew grasses and undergrowth of briers and oak brush. The Mescalero Indian Reservation embraces a portion of the Sacramento and White mountains. Like the country south of the reserve, only a small per cent of the lands are agricultural in character, and the soil is not deep, is loose and porous, and susceptible to wash from torrential rainfall. In the reservation the forest is less dense than further south, and there is even more necessity to protect it from spoliation. The agricultural lands are already occupied by the Mescalero Apache Indians, who are just adopting agricultural and pastoral pursuits, and are at this time self-supporting. If the reserve should be thrown open to settlement only the mountain lands could be located, and these lands have no value whatever, except for forest conservation of moisture. If the reserve should be thrown open it should be immediately embodied in a forest reservation and the forest perpetually protected. The ruin of the forest not only means ruin to the agricultural land now occupied and cultivated by the Indians, but to thousands of acres occupied and cultivated by white settlers outside the reservation. It will mean the abandonment of the Fort Stanton Hospital Marine Service Sanitarium, at Fort Stanton, N. Mex., where the Government is spending $60,000 for the perpetual care of sailors who suffer from tuberculosis. The water supply and the farming lands of the Indians and the Mescalero boarding school will be ruined. At this school the Government has spent large sums of money in establishing a school, and is still spending money for new improvements. An electric-light plant is now under construction. On the necessity of preserving our forest I quote the following from Farmer's Bulletin No. 20, 1894, United States Department of Agriculture:

"Forest ground is not subject to (this) erosive action of the rainfall because in a forest a large part of the rainfall never reaches the soil, as 20 or 30 per cent is intercepted by the foliage and evaporated before it reaches the ground. The rainfall which reaches the surface is rapidly absorbed, as the soil is kept granular and loose and much more of the water is carried off by underdrainage rather than by surface drainage. The forest covering protects the soil in the following ways:

"(1) By preventing rain from falling directly upon the soil, the foliage of the tree crowns intercepting and breaking the force, the water reaching the soil more gently from the leaves and along the branches and trunks of the trees.

"(2) By interposing a loose cover or mulch of litter formed by the fallen leaves and branches, which breaks the direct force of the raindrops and keeps the soil from being compacted or puddled by their blows.

"(3) The deeply penetrating roots and holes left from decayed stumps and roots of trees assist in this underground drainage.

"(4) The litter, with the stumps and projecting roots and trunks of trees, prevent the water from rapidly running over the ground and from gaining momentum and force, which is necessary in order to erode and gully the soil.

"(5) The forest cover prevents the drifting and rapid thawing of snow, thereby insuring more even distribution of the waters and an increase in the time which it can percolate or be absorbed into the soil.

"If the forest floor is not disturbed by fire, nor the litter trampled and compacted by cattle, it always reduces rapid surface drainage and largely, if not entirely, prevents erosive action.

"Just as deforestation of hillsides and hilltops is the first cause for inducing erosive action, so is reforestation the most effective means in curing the evil. This has been demonstrated in France, where the Government and the farmers together have spent, during the last thirty years, over $40,000,000 and expect to expend three or four times that amount to reforest 1,000,000 acres of denuded mountain sides, the soil and débris from which has been carried by the torrents of water into the plain, covering over 8,000,000 acres of fertile ground, and making it useless for agriculture. Sodding for pasture has been found mostly less effective and on the steeper slopes entirely ineffective.

"Wherever the ground in the hill country is not fit for agricultural use, it should be set and kept in forest, not only to make it produce a timber crop, but also to prevent the erosion which finally becomes dangerous to the lower valley lands. Wherever agriculture is possible and profitable there should be such a distribution of forest, pasture, and field as will secure the greatest immunity from erosive and torrential action of the waters. The forest should occupy all hilltops, which, as a rule, have too thin a soil to allow profitable agricultural use; it should be kept growing on the steeper slopes where the water acquires the greatest momentum, and the loosening of the soil by the plow furnishes a most favorable condition for erosive action; it should be placed on all rocky, uneven, agriculturally useless spots, because it will produce useful material even on such unfavorable situations, and, finally, forest belts should be maintained on long slopes alternately with fields and pastures running along the brow of the slope of widths and at distances proportionate to the character of the land and the angle of the slope on the steeper slopes closer together, on the gentler slopes farther apart. These belts, acting as a barrier to break the force of the water, will prevent an undue accumulation of surface waters, and will protect to a considerable degree the lower fields from washing. Farmers, therefore, living in the eroded hill country should start upon the work of reforestation with a well-conceived plan. They should determine beforehand which parts ought to be in forest, and which they may reasonably expect to adapt again to agricultural uses. They should understand that they must begin this work at the origin of the evil, at the very tops of the hills where the water begins to gather and acquire force, and gradually proceed with their work down to the lower levels."

While foreign governments and certain States in this country are paying out such immense sums of money for the reforestation of lands, our Congress should never permit the title of this reservation to pass out of the hands of the Government. The Government is now feeding the Pima Indians at an expense of $20,000 on account of lack of water for their crops. This lack of water was caused by extensive cutting of timber and the overstocking of the lands from which their springs derived their flow. The records of the Weather Bureau show that they have had their annual rainfall. This water did not soak in but ran off in floods. The steady decrease in the flow of the Rio Grande River of late years is caused almost wholly by overstocking and the cutting of timber about the sources of the river.

The Mescalero Indians are bitterly opposed to the opening of the reservation. They do not ask of the Government one cent of money for their support, but do ask the Government to protect their water supply and secure to them a permanency to their peaceable occupations. They do not want to have the same trouble over their water supply as other Indians in New Mexico and Arizona are having.

A BRIEF HISTORY OF THE MESCALEROS.

To watch the development of a band of savage nomads who for untold ages gained a livelihood by making depredations upon whatever section of country they might happen to be in into a community of farmers has in it a certain degree of interest, even though the type of civilization be not a very high one. The Mescaleros are one of the numerous bands of Apache Indians. They take their name because of their fondness for a plant of the palm family called mescal. It is the pulpy heart of which they are so fond, and the preparation of which takes several days. A hollow is made in the earth, the mescal buried beneath stones and roasted by a smoldering fire, night and day, until tender. In taste it resembles candy made from ordinary sorghum molasses and is not unpalatable even to a civilized palate. From the report of Dudley, the superintendent of Indians in New Mexico, in 1873 and 1874, we find that none of them at that time had shown any disposition to work and that their consent to the establishment of a school had not been gained. They were importunate in their efforts to change the borders of their phylacteries so as to include the Sacramento and White mountains. The earliest records of this office are of 1873. The first pass record is issued to six men of the tribe at the request of Roman, a chief, that they may go out to hunt the Indians belonging to but absent from the reservation. They were to bring them in, promising support and protection conditional on their remaining peacefully at the agency, then located at Fort Stanton, N. Mex. The agent, Bushnell, was succeeded by Crowthers, and he in turn by Godfroy, July 8, 1876. Nothing of the years intervening between 1874 and 1876 is left of record. The office of the agency had at that time (1876) been moved to a building about 1 mile west of the present location. In August, 1876, the number of the tribe was augmented by the arrival of a band of Apaches who had been for some months in old Mexico. It was from them that news was had of a party which had left here in June, and arrangements were made with one J. A. Lucero to return them to this reservation at the rate of $1.50 per head. The job of returning Indians seemed to be a paying one in those days, and one wonders if they were not sometimes induced to stray in order to be returned. The agent at this time reports the tribe to be without shelter other than the flimsy wicky-ups made of pine boughs, and nearly naked. The following September a teacher is first mentioned as being a necessary adjunct to the force of employees. On November 10 Lucero arrived with the runaways as per his contract, delivering 2 chiefs, 7 captains or headmen, and 54 children, all of whom were reported as in a destitute condition. The fatted calf was killed and a "welcome home" was given. That there was then some desire to do well was evinced by the fact that at a council called to discuss their plans and future 3 subchiefs came forward and voluntarily on behalf of their bands offered 12 horses, which by their own admission were to atone for 6 horses they had stolen. On the 1st of January, 1877, a school was opened with the wife of the agent in charge. The smallpox, however, early in February had reduced the pupils to 2 in number. The middle of the month found the clerk in possession of the field, the agent himself having succumbed to the epidemic. In November San Pablo with 31 followers came in to the agency, were given a feast, and made much to do over, which, however, did not seem to make them merry, as their murmurings were loud and long because of their friends being in the San Juan country. It seemed to be an era of horse stealing, and whether the Mescaleros were more sinned against than sinning I know not. On December 4, following, San Pablo and his followers came up missing. An investigation was set on foot to ascertain their whereabouts.

On the same date 52 Gila Indians came in footsore and weary to be feasted. Two days later a whisky drunk killed one and wounded many. Copies of letters on file, dated in 1879, show Gen. Lew Wallace to have been governor of this Territory at that time and Russell had succeeded Godfroy as agent. In August Victoria and his band, also a number of Lipan Indians, arrived and were feasted. The day after Victoria's coming one of his men killed a Mescalero, and a few weeks after killed a Mescalero woman—this last just before the exodus of himself and tribe. In November, 1879, the agent requests troops from Fort Stanton to protect the public property, which request he afterwards withdraws. The Indians, in some cases, justified their thefts by saying they thought it no harm to steal so far from home. It is noteworthy that Victoria tried at this time to induce the Mescaleros to join in his raids. However, afterwards some 20 or 30 were reported as having taken their ponies to go and join his forces, having become emboldened to do so probably by the success of his skirmishes with the military. In July of 1880 there was trouble between the Mexicans and Mescaleros. One Indian was murdered, and revenge was taken by burning a train of wagons with their contents which belonged to the native citizens. The 22d of the same month couriers were hurriedly dispatched to Fort Stanton for troops, which arrived by noon of the next day. In March, 1881, Caballero had offered to go out and induce Victoria to come in and surrender, in which plan he failed to succeed. The troops were considered inadequate to the emergency which would exist if, as was expected, Victoria should come in hostile mood, so another request for troops was made. The soldiers on arrival decided to take the initiative, and word was sent over the reservation to the Mescaleros to come in to the agency where they would be taken care of—and that was all. It was in April, 1880, that the outrages on the Mescaleros were perpetrated by the military. Ponies were confiscated, and Nautzilla, the chief of the Mescaleros, was led by false statements to bring in his people for that strange protection which confined men, women, and children for days in a pen unfit for cattle, and which ended in the brutal, indiscriminate shooting of 14 victims. Small wonder that as a result many fled the reservation not to return for months, only hunger and direst necessity finally bringing them back. A school was maintained for a few months during the year, but the Indians showed little appreciation of the opportunity offered their children. The year 1881 seems to have been uneventful. Eighteen hundred and eighty-two was anything but quiet, being marked by depredations and fights with hostile intruders, during one of which latter the agent was shot twice through the arm. In 1883 10 of the tribe enlisted in the United States Army. In 1884 the boarding school was started, with accommodations for 15 pupils. A few months previous the Jicarillas had been brought to live on this reservation, but their discontent after a time necessitated their removal from it. The reports of 1885 show 462 Apaches on the reservation and 721 Jicarillas. There were 30 pupils in the boarding school and 10 in the short-lived day school which was started at Three Rivers. Cowart succeeded Llewellyn as agent in 1886. News had come of the anticipated surrender of Geronimo, which was expected to have a good effect on the Mescaleros. While true that there were a few of this tribe with Geronimo, yet it is also true that some of the Mescaleros gave the Government valuable aid in that campaign by acting as scouts. The death of San Juan occurred during the year, and was felt to be quite a loss, as his example had been such as to urge his people to industry. The Jicarillas gave much trouble throughout the year by leaving the reservation and on two occasions stealing their children from school, General Miles, then at Fort Stanton, sending troops who returned them. In May they were removed to another reservation to the great relief of both the agent and the remaining tribe, which now numbered 438.

In 1887 the day school at Three Rivers was discontinued, the removal of the Jicarillas making it unnecessary. An Indian council to act upon depredation claims was organized, and it is amusing, in imagination, to watch that solemn conclave weighing the evidence with grave faces, but which invariably ended in their solemn protestations of the innocence of this tribe. The Indians during the year did $720 worth of freighting between here and Las Cruces, N. Mex. In 1888, during a tiswin brawl, two men, two women, and a child were shot. In June one of the pupils, a little girl, died and was the first Mescalero ever buried in a coffin. In July a court of Indian offenses was established. About this time the Mescaleros were clamoring for the return of their friends and relatives who had been taken South, prisoners, with Geronimo. Their importunities finally resulted in the return of "Alabama Charlie" and four other families. In the annual report of that year we find the statement that no Mescalero was ever punished by law for taking the life of another. In 1890 school and all other work was suspended for a time by another smallpox epidemic. The question of a field matron was agitated for the first time ten years ago. (One was allowed, beginning July 1, 1900.) There were reported to be 33 children in school here and 15 at Grand Junction, Colo. Hinman Rhodes was now agent, having succeeded Bennet. Eighteen hundred and ninety-one saw no event of unusual importance—nothing but drunks and fights. The report shows 13 cases of polygamy then existing. In 1892, 527 were enumerated in the tribe, 50 pupils were enrolled in the school, and 450 acres of land reported in cultivation. The report for February, 1891, shows the Indians as peaceable, though there were four homicides during the month. Burnett succeeded Rhodes as agent in 1893. The year following we find the Mescalero, with whom the ties of blood seem very strong, clamoring for the release of other relatives who, after eight years, remained prisoners at Mount Vernon Barracks, Ala.

April saw a free-for-all tiswin fight, in which heads were broken, one life lost, and a general mêlée enjoyed. During the year the few Comanches who had been living on this reservation returned to their own country. The wife of Comanche John, who was a Mescalero, evidently differed from the Ruth of Bible fame, for she preferred to remain with her own people. These visits from one reservation to another seemed to breed discontent, and were soon discontinued. Three young men who had been with some of their people at Mount Vernon Barracks, and who had been sent from there to Carlisle school, arrived in May to find and live with their relatives here. A request, which in the light of a later day seems strange, was from Penn Scott, an Apache, who wished to go to Fort Sill to live, giving as a reason that the Indians here drink too much tiswin. Penn has shown a persistent aversion to work, as great as his distaste for tiswin drinking. In 1895 Lieutenant Stotler relieved Burnett, and it is to his policy of urging, pushing, and shoving the Indians to work that much of the improvement in this tribe is due. Nothing of any value for or with these people had been done before his coming. He found the Indians living entirely in tepees and subsisted wholly by the Government. All the freighting was done by natives, and what little work was done was done by employees. Two Indians were killed in a tiswin brawl during his first year. The first year he colonized some of the Indians in Elk Springs Valley, opened up the springs, and ditched the land so as to arrange drainage. In April the newspapers gave much space to sensational accounts of an outbreak, which existed only on paper. In July, 1895, the agent made a bonfire of all the effects of some tiswin makers, and the manufacturers were themselves incarcerated in the guardhouse and put at hard labor. There were 74 in school at that time. During vacation the children were retained in school, though they were given outing parties at intervals. There were a few runaways among the pupils, but the application of a "shingle" seemed an effectual remedy. One of the perplexing questions to be dealt with was found to be the dominant power of the mother-in-law, her authority being found to sometimes supersede the agent's in matters so important as placing children in school. This reign of terror was only broken by threats of the guardhouse. In December, 1895, Sah na hah, an Indian from near Anadarko, Okla., came to get his wife, who was here. On the day following his departure a squaw was abducted, the daughter of Camiso, a Mescalero, and wife of Civatta, a Lipan, who had left the reservation some three years before. The agent wrote to the Kiowa and Comanches for an investigation. Rumor had it that she had been taken by the "Apache Kid," whose custom it was to steal a woman previous to his return to the San Carlos Reservation. So far as I know, the truth of her whereabouts is unknown. The same month Domingo, a good-for-nothing, escaped from the guardhouse, stole a horse, and left for parts unknown. The agent does not mourn his loss, though as a matter of duty makes inquiry of other agents. He is still at large. About this time Magoosh, a man of strong personality, was appointed Indian farmer and found to be efficient, doing what he could by example as well as precept to inspire his people to tend the land. Among the developing influences brought to bear upon these children in mind, but less in ambition, was the giving to each head of a family a number of sheep as a sort of stock in trade. The cutting of lumber and the erection of houses was enforced. Cook stoves, as a further inducement toward adopting civilized modes of life, were given to those showing any real desire toward improving their condition. Tubs, another factor in civilization, were soon earnestly requested by some of those in whom a ray of ambition was beginning to dawn. In March, 1896, the fiat went forth that locks must be shorn, and by diplomacy, bribes, and punishment all the men were induced to part with their raven tresses. It was now that these Indians were beginning to see the finger of fate pointing to work as their inevitable destiny. On the heels of these changes pantaloons were adopted, though it is not recorded that they were at all particular about having them creased. A hungry stomach was found to be an excellent mode of discipline. It is refreshing to mark the difference in the tone of the letters of former agents, who were continually calling for larger appropriations, and his, which continually advocated a decreasing policy in the issue of rations. In July, 1898, he was relieved from duty at this place, after having worked indefatigably to make these Indians self-supporting for three and one-half years.

Discipline, work, sobriety, allotment of land, and an empty stomach have solved the "Indian problem" on this reservation in the last five years, after "adequate appropriations," "increased supply of rations," "council rooms," and "tiswin and whisky" had a full, free, and fair hand at it for a period extending over twenty-three years. These Indians are now self-sustaining, all rations and annuities having been cut off on July 1, 1899, except to old persons who are so incapacitated by injuries, old age, or blindness as not to be able to earn a support by farming or the care of sheep or goats. Their sheep and goats are on the increase, some Indians having from 600 to 800 sheep, whereas a few years ago they had not more than a hundred or so. Their horses are rapidly improving.

These Indians have not manufactured any tiswin since October, 1897. On January 29, 1899, a white man sold a quantity of whisky to a number of the Indians. Both parties to the transaction were severely punished. On that date the traffic ceased, and consequently I am able to report that there has not been a drunken Indian on this reservation since then. Eighteen months of absolute sobriety has had a wonderful effect in making these Indians more industrious and self-reliant. All have now adopted the white man's dress. All marriages are now performed by the superintendent and a record kept of them. Divorces are also regulated by the superintendent, or, rather, he has refused to grant any so far, as their misunderstandings have been fixed up without a divorce. Much is yet to be done, however. The backward ones must be shoved up to the front, the timid encouraged, the lazy made to do penance in the guardhouse at hard labor, and the ignorant taught.

MESCALERO BOARDING SCHOOL.

One hundred per cent of the available school children on the reservation are in the school; 128 out of a population of 482, all children from 5 to 19 years of age. Attendance is compulsory. The average attendance for the year was 117.

The following improvements were made by the employees and schoolboys: One barn, 40 by 90 feet, for 15 horses, 30 cows, with room for 100 tons of hay, harness room, etc.; 3 miles of new wire fence; board fences; ditches and flumes; 96 acres of land put under cultivation and added to the school farm; overshot wheel attached to wood saw; enlarged dining room and boys' dormitory; repairs to main building, and stocked one lake with rainbow trout. We are now putting in an electric-light plant, to be run by a water wheel. The work is being done by the employees and Indians, under the supervision of an expert mechanic. The farm is looking well, and we have already cut 15 tons of hay.

During the year, besides the literary studies, the boys were taught carpentering, plastering, stone laying, blacksmithing, farming, gardening, stock raising, etc. The girls were taught housekeeping, sewing, dressmaking, cooking, laundering, blanket making, embroidery, etc. A number of the old Indians attended our "night school for old Indians" and learned to write their names and to speak some English.

Our baseball nine won some very nice games at the agency with other teams, and had some very nice trips to Alamogordo and other places to play local teams. It did the boys a great deal of good.

The work in the class room and in the various departments has moved along smoothly, and on the whole has been quite satisfactory. Care has been taken by the employees to instill the principles of cleanliness, politeness, kindness, and morality.

I have the honor to be, very respectfully,

WALTER MCM. LUTTRELL,
Superintendent and Special Disbursing Agent.

The GOVERNOR OF NEW MEXICO,
Santa Fe, N. Mex.

PUEBLO AND JICARILLA AGENCY,
Santa Fe, N. Mex., August 14, 1900.

SIR: I have the honor to submit the following report of the operations of this office for the fiscal year ending June 30, 1900:

PUEBLOS.

Tribes.—The Pueblos under this agency are composed of five different tribes, which, though similar in their habits and customs, are totally different, and speak languages entirely dissimilar. The strongest is the Queres, composed of the pueblos of Cochiti, Santo Domingo, San Felipe, Santa Ana, Zia, Acoma, and Laguna, containing a population of 3,394. The Piros tribe is composed of the pueblos of Taos, Picuris, Sandia, and Isleta, with a total population of 1,607. The Zuñi pueblo is a distinct tribe, but from certain similarities is thought to be derived from a common stock with the Queres people. Its population is 1,523. The six Tegua pueblos of San Juan, Santa Clara, San Ildefonso, Pojoaquo, Nambe, and Tesuque, with a population of 910, lie in a body to the north of Santa Fe. The pueblo of Jemez is the only remaining one of the tribe which it represents, to which also belonged the pueblo of Pecos, abandoned some fifty years since. Population, 449. The figures given above are in each case exclusive of children away from home attending boarding schools, either Government or sectarian.

Population.—The population of the individual pueblos is as follows:

Pueblo.	Males over 18.	Females over 14.	School children 6 to 18 years old.	Total population.
Acoma	133	147	119	492
Cochiti	65	59	48	198
Isleta	397	291	232	1,021
Jemez	154	143	114	449
Laguna	311	331	257	1,077
Nambe	24	21	27	80
Picuris	32	32	27	96
Pojoaque	4	3	3	12
Sandia	33	21	14	76
San Felipe	188	131	81	514
San Ildefonso	41	44	35	138
San Juan	126	108	108	379
Santa Ana	104	61	42	228
Santa Clara	66	71	56	221
Santo Domingo	248	229	157	771
Taos	129	102	100	414
Tesuque	26	20	32	80
Zia	36	28	32	114
Zuni	560	519	276	1,523
Total	2,677	2,356	1,755	7,883

It will be observed that there are some discrepancies between these figures and those given last year. The population as given for Acoma last year was immensely overestimated, as it was impossible to secure a correct census of the people, and their habit of continually moving from one village to another made it difficult to determine just how many belonged at each village. At Cochiti 95 Mexicans who live in the pueblo among the Indians were included in the population, but are omitted this year. At Santo Domingo a large proportion of the people have two separate residences, at each of which they are to be found during a part of the day, and as a consequence many of them were enumerated twice last year. The abandoned pueblo of Pojoaque, at which two families yet live, is included in the above in order to render the enumeration complete. The subpueblos of Laguna, Pahuato, Paraje, Casa Blanca, Santana, and others are all included with the mother pueblo this year, while their population was given separate last year, which greatly increases the number at Laguna. All other differences may be accounted for on the score that all school children attending school away from home are omitted from the enumeration this year, while they were included last.

Mortality and infirmities.—The statistics of deaths, blind, deaf, and dumb, are as follows:

Pueblo.	Deaths during year.	Blind.	Deaf.	Dumb.
Acoma	5	....	....	....
Cochiti	24	....	....	....
Isleta	42	6	1	....
Jemez	10	4	5	....
Laguna	13	....	....	....
Nambe	1	3	....	....
Picuris	6	3	....	....
Pojoaque	....	....	....	....
Sandia	2	1	....	....
San Felipe	14	4	7	....
San Ildefonso	4	3	2	....
San Juan	9	9	1	....
Santa Ana	3	6	5	1
Santa Clara	10	1	2	1
Santo Domingo	16	3	....	....
Taos	9	4	4	....
Tesuque	8	....	....	....
Zia	4	1	3	....
Zuni	64	10	....	....
Total	244	58	30	2

Cultivated lands and produce.

Pueblo.	Cultivated.	Wheat.	Corn.	Melons.	Hay.
	Acres.	*Bushels.*	*Bushels.*	*Number.*	*Tons.*
Acoma	342¼	1,178	1,710	....	....
Cochiti	260	773	1,530	100	....
Isleta	3,510	11,706	20,109	....	....
Jemez	2,557¼	14,318	12,478	29,611	....
Laguna	664	1,978	2,326	....	....
Nambe	64	324	270	....	....
Picuris	103	412	408	....	....
Pojoaque	12	38	60	....	....
Sandia	383	1,159	1,308	....	....
San Felipe	1,200	8,000	10,000	32,000	392
San Ildefonso	99	20	20	....	....
San Juan	506	2,420	5,786	12,273	206
Santa Ana	1,182	5,921	5,561	....	143
Santa Clara	440	906	3,319	4,498	170
Santo Domingo	918	2,337	6,854	6,300	....
Taos	655	6,075	5,540	....	16
Tesuque	30	62	196	....	....
Zia	141¾	169	78¼	811	7
Zuni	5,201	14,888	20,060	59,775	6
Total	18,378¾	69,164	97,613¼	145,368	930

Other produce is as follows: Cochiti, 22⅙ bushels onions, 71 bushels beans, 1,500 pounds Chili; Nambe, 4 bushels onions, 51½ bushels beans, 340 pounds Chili; Picuris, 10 bushels beans, 23 bushels pease; San Juan, 2 bushels onions, 24 bushels beans, 5 bushels sweet corn, 2 bushels pease, 1,364 pumpkins; Santa Ana, 14 bushels beans, 55 bushels pease, 5,058 pounds grapes; Santa Clara, 1⅓ bushels beans; Taos, 60 bushels oats, 29 bushels beans, 74 bushels pease; Zuni, 822 bushels onions, 875 bushels beans, 2,857 bushels sweet corn, 30,740 squashes, or a total of 60 bushels oats, 850⅙ bushels onions, 1,075⅚ bushels beans, 1,840 pounds Chili, 154 bushels pease, 2,862 bushels sweet corn, 1,364 pumpkins, 30,740 squashes, and 5,058 pounds grapes.

Domestic animals.—The stock owned by the various pueblos is as follows, exclusive of sheep:

Pueblo.	Cattle.	Horses.	Mules.	Burros.	Goats.	Hogs.	Fowls.
Acoma	616	441	17	212	323	77	76
Cochiti	69	147	....	46	....	....	124
Isleta	498	1,389	39	52	502	75	117
Jemez	267	423	11	175	....	42	47
Laguna	1,293	1,274	74	274	1,539	141	179
Nambe	23	39	1	20	150	5	13
Picuris	60	42	....	40	....	14	40
Pojoaque	....	2	....	2	....	....	....
Sandia	113	76	....	22	20	5	....
San Felipe	700	900	....	1,000	25	12	4
San Ildefonso	26	59	....	44	....	6	12
San Juan	52	132	....	139	....	64	170
Santa Ana	261	459	54	158	....	7	....
Santa Clara	41	151	....	97	....	10	88
Santo Domingo	312	602	1	107	....	3	60
Taos	238	486	....	115	....	33	184
Tesuque	38	83	....	50	....	....	....
Zia	88	193	16	63	....	5	109
Zuni	183	1,215	218	381	4,207	63	1,264
Total	4,876	8,063	431	2,917	6,766	562	2,487

Sheep and wool.

Pueblo.	Sheep.	Wool.	Value of wool.
Acoma	3,317	13,290	$1,901.00
Isleta	8,500	7,800	1,012.00
Laguna	19,482	38,731	5,610.00
San Felipe	300	450	54.00
Zuni	46,744	82,744	8,274.40
Total	73,448	143,015	16,851.40

Farmers.—During the year 2 additional farmers have been appointed, 1 for the pueblo of Taos and 1 for the two pueblos of Laguna and Acoma, making a total of 4 farmers among the pueblos. While none of them have had time to accomplish very far-reaching results, the good effects which are already apparent are a prophecy of the untold benefit which will result to the Indians from their labors.

Schools.—Reference to my annual report for the year ended June 30, 1898, just previous to my taking charge of this agency, shows 14 schools, with an enrollment of 551 and an average attendance for the year preceding of 266.9. There were during the quarter ended March 31, 1900, the last quarter in which all the schools were under my care, 19 schools in active operation, with a total average attendance of 555.02, an increase of 5 schools, and an average attendance more than doubled during the 7 quarters they were under my care. In May a new school was opened at Pescado, one of the subpueblos of Zuni. Schools were authorized for Nutria and Ojo Caliente, but on account of various delays have not yet been opened. These schools are very important to the service at Zuni pueblo, as they will have a strong tendency to keep the people from crowding to Zuni proper during the winter season, thereby rendering the latter a hotbed of disease and death whenever an epidemic strikes the people. If they can be induced to remain in the farming communities, a far more sanitary condition will result than at present obtains, and the influence of a school is the only apparent means of breaking up the old custom.

The schools at Cochiti, Jemez, Nambe, Picuris, San Ildefonso, San Juan, Santa Clara, Santo Domingo, Taos, Tesuque, and Zia were transferred to the jurisdiction of the superintendent of the Santa Fe school April 1, and the remaining schools of this agency, viz, Acoma, Isleta, Laguna, Pahuate, Paraje, San Felipe, Santa Ana, Zuni, and Pescado, and the unorganized schools at Nutria and Ojo Caliente, were transferred in a similar manner to the superintendent of the Albuquerque school June 30.

The work of the teachers and employees has been exceptionally good during the past year, each exerting himself or herself to the utmost to bring the schools up to the highest possible standard of efficiency.

As heretofore recommended on many different occasions, if it is the intention to maintain these schools among the Pueblos the Department should build modern and comfortable schoolhouses which will be an inspiration to the pupils to strive after better things, and discontinue the present plan of having school conducted in an Indian house, which tends to confirm the crude ideas of home architecture which he may imbibe from his parents and surroundings.

Contract school.—The contract school at Bernalillo has continued during the past year to maintain its former high standard. The influences to which they are subjected will always be a blessing to the pupils who are so fortunate as to attend this institution.

Aztec Indians in the nonreservation schools.—For some years past it has been a custom among some superintendents of nonreservation schools to admit any person with a Spanish name who would furnish an affidavit that Indian blood flowed in his veins. One superintendent openly went to Mexican villages and solicited pupils from families not before suspected of being Indians, making the claim that the private soldiers that came to New Mexico with the Spanish conquerors were Indians of the Aztec and other Mexican tribes, and that the present Mexican population of New Mexico are descendants of these Aztec Indians, and consequently are Indians under the meaning of the law. I understand that he secured a number of these Aztecs for his school. The number of Mexican pupils in the Albuquerque school has been so great in times past that it is called in that city the "Mexican Industrial School." I do not think the present superintendents of either the Albuquerque or Santa Fe schools will resort to such practices, but this agency has been visited by three different superintendents of distant nonreservation schools within the past eighteen months who were not deterred by any such scruples. One went to the Mexican village of Taos and secured a number of pupils from the Presbyterian Mission school at that point, almost wiping out the latter. Another superintendent came to Santa Fe and took children from this city to his school on three separate occasions, taking about 75 in all. Persons acquainted with these children tell me that scarcely one of them shows the least appearance of Indian blood. In none of these cases were the descriptive statements required by section 17, Rules for the Indian School Service, furnished to this office.

Not only is this practice an injustice to the Indians, but the expense of transporting these children to distant points and maintaining them there is great. In this connection, I would call attention to the fact that there are enough full-blood Pueblo children in New Mexico to fill both the day and nonreservation schools and have several hundred left over for outside institutions without going to distant points to collect children for education in this Territory.

Missionaries.—The Dutch Reformed Church maintains two missionaries at Zuni—Mr. A. Vanderwagen and wife. The Presbyterian Church has a medical missionary at Laguna, Rev. C. E. Lukens, who is doing great good in relieving disease among them.

The Presbyterian Church supports a small day school at Soama, a village of Laguna Indians lying between Laguna and Acoma. Its two teachers are a great help to the people.

The work of the St. Catherine's Indian School in this city is proving of great benefit to the Pueblos located near Santa Fe, from which about 100 children are taught and cared for each year.

Health.—On the whole, the health has been excellent this year. The only epidemic was an outbreak of measles at Isleta, from which about 20 died. There were also about 20 deaths from malaria at Cochiti during the early part of the year.

Physicians.—No physicians have yet been sent to the Pueblos, though there is a pressing need for medical attendance on the sick. I desire to here renew my former recommendations that 5 physicians be appointed for the Pueblos. These can be assigned to central points from which all the Indians may have medical attendance.

In case it is impossible to appoint regular physicians it has been suggested that the need could be partially provided for by including in the requirements of supervising teacher that he be also a physician. On visiting the schools he can then examine cases of sickness and give instructions to the teachers which will enable them to save many lives. I consider the suggestion a good one and worthy of consideration.

Irrigation.—There has been but little change in the condition in this regard during the past year. All the ditches are in good condition.

The case of Jose A. Ribera et al. *v.* Pueblo of Nambe has been recently decided. The full amount of water claimed by the Indians has been confirmed to them.

The appointment of a superintendent of irrigation, which I am informed will shortly be made, will undoubtedly prove of untold benefit to the various Pueblos by enabling them to learn how they can change their ditches to take in more land.

Murder at Acoma.—About the middle of April a double murder occurred at the Pueblo of Acoma. It is impossible to know the exact facts in advance of the trial. As claimed by the Indians, Faustin Valle found his father-in-law, Hash ka ya, in criminal intimacy with his own daughter, Faustin's wife, and killed him. Hash ka ya's brother, George Edward, tried to arrest Faustin, and upon the latter's resisting arrest killed him. The matter was reported to the Territorial authorities and George Edward was arrested and placed in jail to await trial for murder. The district attorney has promised to bring the case to trial as quickly as possible.

Reservation for Laguna Indians.—Some months ago the matter of the necessity of a reservation for the Laguna Indians was brought to my attention, and under date of June 30, 1899, I requested that steps be taken to secure a reservation to the Laguna Indians of lands now used by them, but to which they have no legal title. Out of the 17,361 acres of land in their grant but 215 can be used for farming purposes. The El Rito, San Juan, and Cigante purchases can only be used for pasturage. There are some small farming areas on the Paguate purchase and the Santa Ana purchase, but the main dependence of the Pueblo for farming is in the valley of the San Jose River, between the Santa Ana purchase and the Pueblo grant. This area is about 5 miles long and 2½ miles wide, bounded by mesa land on both sides. Within this area are the Laguna villages of Santa Ana, Casa Blanca, and Paraje, with their fields, orchards, and irrigating canals. This tract contains the largest area of farming land operated by them, and has been occupied for more than one hundred and fifty years. There is a spring and ranch 4 miles north of the Pueblo, one 7 miles southwest of the Pueblo, and one 5 miles south. These places are used as stock ranches and are the only ones near the town that can be used for such purposes. These lands were all claimed by the Pueblo of Laguna, but the Court of Private Land Claims decided that they did not hold title to them. This is a very important matter, and I again most earnestly request that it receive prompt attention and favorable action, as the only resource of the Pueblo outside of actual support by the Government is to have the valley of the San Jose at least reserved, and the springs mentioned are much needed. Outsiders are beginning to come onto this land and settle, and if not stopped will be a source of continual trouble in the future.

Litigation.—Progress has been made in most of the cases mentioned in my last report, but very few final decisions have been reached.

Present condition.—The condition of the Pueblos this year is on the whole better than usual. With the exception of San Ildefonso and Zia all have fair crops.

Needs.—I have here the honor to call attention to the great need of flouring mills among the Pueblos. Their method of making flour is by grinding wheat between two stones by hand, which work is all performed by the women. The great excuse which the Indians make why the girls can not be sent to school is that they are needed at home for the grinding. The Pueblos just north of Santa Fe are located near enough to mills to have their grinding performed without this laborious process. There should be five mills set up among the Pueblos, one at Zuni, one at Laguna, one at Jemez, one at Isleta, and one at San Felipe. The other Pueblos are located sufficiently near these points to have the benefit of their use. These mills should be of a size costing from $1,000 to $2,000 each.

JICARILLAS.

Population.—The last census shows a population of 815, a decrease of 16 since last report.

Agriculture.—As these Indians were unable to procure seed for planting this year they will raise but little besides hay.

Timber.—I can do no better than repeat my recommendation of one year ago. "A large part of the reservation is covered with exceptionally fine timber, part of which could be marketed and the proceeds used in the purchase of cattle and sheep for the Indians. In this way the Jicarilla Apaches can be made self-supporting in a few years; but unless they are given the means to turn their attention to stock raising they will continue to be a care to the Government for many years to come. This timber, standing as it does, is of no value to anyone but could easily be the means of giving the Apaches a start in self-support, which would be the means of relieving the Government of the responsibility and transform them from dependents to citizens."

Allotments.—These remain in exactly the same condition as heretofore, no action having been taken.

Missionaries.—The Methodist Church supports two missionaries on this reservation.

Roads and bridges.—Four miles of road was built and 25 miles repaired by the Indians during the year.

Arts and trades.—The Indians realized about $7,000 during the year from the sale of baskets, bows and arrows, and bead work.

Indian courts.—The court here is composed of three judges, who have punished 4 Indians during the year for Indian offenses. Fifty-one Indians have also been punished by confinement to agency jail for being drunk and disorderly, and for leaving reservation without permission.

Fences.—About 10,000 acres of this reservation is under fence. Three thousand rods of new fencing was built during the year.

Products and stock.—The Indians have about 600 acres under cultivation this year, on which they have raised 200 bushels wheat, 325 bushels oats, 75 bushels corn, 400 bushels potatoes, 35 bushels onions, 20 bushels of beans. They also cut about 600 tons of hay. They own 1,523 horses, 12 mules, 131 burros, 60 cattle, 3,060 sheep, 609 goats, and 90 domestic fowls.

Issues.—Issues are made semimonthly. There are also small issues of annuity goods each year, but no cash annuity.

Education.—There are now 210 children of school age on the reservation. These people are as yet without school facilities, but there is a school building to be completed by December 1, which will supply this need.

Health.—The health has been good during the past year, there being no epidemics of any kind.

Dwellings.—During the past year 10 houses have been built by Indians, with some Government help, making 295 houses now occupied by Indians, a net increase of 5 over the past year.

Present condition.—The present condition of these Indians is very poor. It is very difficult at any time to raise crops on this reservation, but on account of the Government failing to furnish them with seed this year, and the total failure of all crops last year on account of drought, they are raising practically nothing, and the Government rations are not nearly sufficient for their needs.

Needs.—Before the Apache can ever become self-supporting on his present reservation he must be provided with stock, either by the sale of timber, as suggested above, or by some other means. The reservation is totally unfit for agriculture, but is well adapted to stock rasing. The Apache Indian is too poor to secure the necessary amount of stock to enable him to support himself by their care, and he will remain a burden upon the Government until they are provided.

Respectfully submitted.

N. S. Walpole,
United States Indian Agent.

The Commissioner of Indian Affairs,
Washington, D. C.

VANDERCOOK - CO. CHI.

A NEW MEXICO ROUGH RIDER.

St. Vincent Sanitarium,
Santa Fe, N. Mex., June 2, 1900.

Sir: In handing you this report of St. Vincent Hospital and Orphanage I wish to thank you and your official associates for kind attention and prompt and full payment of tax levy assigned these institutions.

Very respectfully, yours,

Sister Eulalia,
Sister of Charity.

Hon. Miguel A. Otero,
Governor of New Mexico, Santa Fe, N. Mex.

Report of St. Vincent Orphan School, fiftieth fiscal year, from March 4, 1899, to December 2, 1899.

Children in asylum March 4, 1899	32
Children received during the year	39
Children taken by relatives and friends	28
Children died during the year	1
Children remaining in asylum December 2, 1899	42

Financial statement of St. Vincent Orphan School, fiftieth fiscal year.

Receipts.		Expenditures.	
From Territorial appropriation	$3,999.60	Groceries and bread	$1,520.65
Tuition fees	143.90	Meat	700.50
		Milk and butter	365.80
		Drugs	27.00
		Dry goods	450.00
		Mending shoes	40.40
		Hose	85.60
		Hats and trimmings	50.75
		Coal and freight	350.90
		Coal oil	78.80
		School books, slates, etc	69.65
		Writing material and stamps	20.45
		Shoe polish and laces	10.80
		Laundry soap	79.85
		Toilet articles and soap	67.35
		Wood	75.00
		Shoes	150.00
Total	4,143.50	Total	4,143.50

Report of St. Vincent Orphan School, fifty-first fiscal year, from December 4, 1899, to June 2, 1900.

In asylum December 4, 1899	42
Children received to June 2, 1900	10
Children taken by relatives and friends to June 2, 1900	14
Children remaining in asylum June 2, 1900	38

Financial statement of St. Vincent Orphan School, fifty-first fiscal year.

Receipts.		Expenditures.	
From Territorial appropriation	$2,666.40	Groceries and bread	$875.39
		Meat	475.50
		Milk and butter	275.50
		Drugs	25.01
		Dry goods	190.00
		Mending shoes	48.00
		Hose	55.00
		Hats and trimmings	35.00
		Coal and freight	284.00
		Coal oil	55.50
		School supplies	55.50
		Writing material and stamps	17.75
		Shoe polish and laces	11.00
		Laundry soap, starch, etc	45.00
		Toilet articles, soap	25.00
		Wood	25.00
		Shoes	158.25
Total	2,666.40	Total	2,666.40

Report of St. Vincent Hospital for the fifty-first fiscal year, from December 4, 1899, to December 1, 1900.

Patients in hospital December 4, 1899	20
Patients received up to June 2, 1900	30

Counties from which patients came who were admitted during six months:

Santa Fe County	9
Bernalillo County	12
San Miguel County	4
Socorro County	2
Colfax County	3
Total	30

Supplies purchased to June 2, 1900, and cost of same.

Items.	January.	February.	March.	April.	May.	June.	Total.
Groceries	$114.59	$70.87	$128.65	$134.56	$62.67	$122.08	$633.42
Bread	23.86	25.00	24.00	25.00	23.50	24.50	145.86
Butter	25.60	25.53	24.25	24.75	22.20	24.75	147.08
Water	10.00	10.00	10.00	10.00	10.00	10.00	60.00
Coal and freight	74.25	68.48			62.00		204.73
Meat		56.22	68.50	60.20	56.68	64.42	306.02
Coal oil	11.50	11.50	11.50	5.75	5.75	5.75	51.75
Milk	30.50	30.00	30.00	30.00	35.00	30.00	185.50
Drugs	19.80		13.20	13.59	32.30	28.60	107.49
Poor funerals		12.50		6.25			18.75
Total	310.10	310.10	310.10	310.00	310.10	310.10	1,860.60

Receipts and expenditures of St. Vincent Hospital from December 4, 1899, to June 2, 1900.

Receipts.		Expenditures.	
From Territorial appropriation	$1,860.60	Groceries	$633.42
		Bread	145.86
		Butter	147.08
		Water	60.00
		Coal and freight	204.73
		Meat	306.02
		Coal oil	51.75
		Milk	185.50
		Drugs	107.49
		Poor funerals	18.75
Total	1,860.60	Total	1,860.60

Report of St. Vincent Hospital, Santa Fe, N. Mex., from December 4, 1899, to June 2, 1900.

Patients in hospital December 4, 1899	20
Patients received to June 2, 1900	30
Patients discharged to June 2, 1900	28
Patients died to June 2, 1900	4
Patients in hospital June 2, 1900	18
Days to June 2, 1900	4,034
Prescriptions filled to June 2, 1900	140

Diseases treated.

Paralysis	1
Atrophy spinal cord	2
Palsy and debility	1
Eyes burned in mine explosion	1
Cataract	1
Chronic rheumatism	2
Bright's disease	1
La grippe	1
Broken back	1
Mashed hand	2
Optic neuritis (blind)	1
Bruised foot	1
Varicose veins	1
Stomach trouble	1
Debility (old age)	1
Cancer of face	2
Fracture of spine	1
Compound fracture of wrists and thigh	1
Pulmonary tuberculosis	7
Typhoid pneumonia	1
Dislocated hip	1
Cold from exposure	1
Mashed fingers	3
Bilious fever	1
Inflamed leg	1
Inflammatory rheumatism	3
Suppurating pleurisy	1
Alcoholism	1
Sore feet	1
Sore arm	1
Bronchitis	1
Abscess of groin	1
Catarrh of stomach	1
Partial paralysis	1
Burned by electricity	1
General debility (old age)	1
Total	50

Report of St. Vincent Hospital for the fiftieth fiscal year, from March 5, 1899, to December 2, 1899.

Patients in hospital March 4, 1899	19
Received during the year	55

Counties from which patients came who were admitted during nine months:

Santa Fe County	28
Bernalillo County	19
San Miguel County	6
Colfax County	2
Total	55

Supplies purchased during the year and cost of same.

Items.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Groceries	$60.39	$178.54	$133.65	$184.75	$142.60	$128.33	$81.68	$131.63	$75.32	$1,116.89
Bread	24.00	20.00	18.00	20.25	20.70	22.75	21.00	22.75	22.75	192.20
Butter	13.53	......	......	16.00	12.80	24.52	22.54	22.55	24.53	136.47
Water	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	90.00
Coal and freight	77.68	......	62.30	......	......	......	62.78	......	64.45	267.21
Meat	50.00	59.41	52.65	55.60	65.75	62.50	65.75	67.82	65.45	544.93
Coal oil	5.25	5.25	5.25	5.25	5.25	5.25	5.25	10.50	5.50	52.75
Alfalfa	54.25	......	......	......	......	......	......	......	......	54.25
Milk	......	......	......	......	25.00	23.45	25.50	29.35	21.25	124.55
Drugs	15.00	18.15	15.75	12.00	21.75	20.80	15.60	15.50	20.85	155.40
Poor funerals	......	18.75	12.50	6.25	6.25	12.50	......	......	......	56.25
Total	310.10	310.10	310.10	310.10	310.10	310.10	310.10	310.10	310.10	2,790.90

Financial statement.

Receipts.		Expenditures.	
Territorial appropriation	$2,790.90	Groceries	$1,116.89
		Bread	192.20
		Butter	136.47
		Water	90.00
		Coal and freight	267.21
		Meat	544.93
		Coal oil	52.75
		Alfalfa	54.25
		Milk	124.55
		Drugs	155.40
		Poor funerals	56.25
Total	2,790.90	Total	2,790.90

Diseases treated.

Paralysis	4	Rheumatism	2
Atrophy spinal cord	1	Ulcerated finger	1
Palsy and debility	1	Mashed hand	1
Cripple for life	1	Debility from pneumonia	1
Optic neuritis (blind)	1	Burned hands	1
Eyes burned in mine explosion	1	Mashed toe	1
Cataract	1	Dropsy	1
Chronic rheumatism	1	Acute rheumatism	1
Asthma	1	Both legs cut off in railroad accident	1
Frozen feet	1	Dysentery	1
Debility	3	Mashed fingers	1
Pulmonary tuberculosis	12	Bruised foot	2
Bright's disease	2	Bruised ankle	1
Sprained ankle	1	Blood poison	1
Compound fracture and diseased bone	1	Varicose veins	1
La grippe	1	Stomach trouble	1
Lead poison	1	Debility (old age)	1
Malarial fever	3	Liver trouble	1
Broken back	1	Head cut by falling brick	1
Injured knee	1	Typhoid pneumonia	1
Chronic dysentery	2	Cancer of face	1
Muscular rheumatism	1	Fracture of spine	2
General debility	3	Mountain fever	2
Gunshot wound in foot	1		
Chronic ulcer on leg	1	Total	74

Report of St. Vincent Hospital, for the fiftieth fiscal year ended December 2, 1899.

Patients in hospital March 5, 1899	19
Patients received during the year	55
Patients discharged during the year	44
Patients died during the year	10
Patients remaining in hospital December 2, 1899	20
Total number of days	4,768
Number of prescriptions filled	158

NEW MEXICO INSANE ASYLUM.

Las Vegas, N. Mex., *June 1, 1900.*

Sir: We take pleasure in handing you herewith statement of condition of the New Mexico Insane Asylum for the past year, as shown by the reports of the medical superintendent and steward.

As shown by the report of the medical superintendent, the average number of patients taken care of has been 92, as compared with 77 for the preceding year.

The male department is now accommodating patients up to about its full capacity, and steps should be taken at an early date by our legislature to enlarge our present quarters if the insane of our Territory are to have treatment given them equal to that given by our sister States and Territories.

In our opinion the plan that should be adopted is one that would result in all of the present quarters or wards being turned over entirely to the male department, and a new building erected for the women at a reasonable distance from the men's quarters.

It is a matter of more or less inconvenience, to say the least, to have both sexes in the same building, and more of a difficult matter to handle the patients than if the sexes were kept in separate buildings, as is now the case in about all of the asylums of the United States.

In our report last year we referred to the fact of the legislature having increased our levy to 1 mill. On the strength of this we have ventured to partially overhaul our administration building and build ourselves a brick kitchen, the total cost of all this work being about $2,700.

These improvements were so very badly needed that we thought it best to make this expenditure, believing we could see our way clear to save this from our levy by the last of this year.

We respectfully refer you to the following reports of our medical superintendent and steward for more detailed information.

J. W. ZOLLARS,
MARCUS BRUNSWICK,
O. L. GREGORY,
NICOLAS T. CORDOVA,
Directors.

Hon. MIGUEL A. OTERO,
Governor of New Mexico.

INSANE ASYLUM.

EAST LAS VEGAS, N. MEX., *June 1, 1900.*

SIRS: Your superintendent begs leave to make the following report for the year ending May 31, 1900:

The number of patients remaining in the asylum May 31, 1899, was 90. During the year there have been 30 admissions.

A total of 120 patients have been treated during the year. The average daily attendance for the year has been 92. The number of discharges has been 21, as follows:

Recovered	8
Improved	1
Unimproved	3
Died	9
Total	21

The causes of death have been as follows:

Maniacal exhaustion	4
Inanition	2
Ptomaine poisoning	1
Pneumonia	1
Pernicious anæmia	1
Total	9

The total number of patients remaining in the institution May 31, 1900, were 99, of which 58 were males and 41 were females, classified as follows:

Acute mania	5
Chronic mania	26
Dementia	59
Epileptic insanity	6
Insanity of adolescence	2
Moral insanity	1
Total	99

By referring to the above table you will notice that there has been but little change in the class of patients compared with my last report, excepting that a larger proportion of them are incurable, most of them having been so before admission to the institution.

Excepting an epidemic of grippe during the month of April, in which one patient died of pneumonia, the health of the inmates has been very good during the year just passed.

Though the number of patients allowed each county was doubled in August, 1898, since then the quota of many counties has been filled mostly by chronics and incurables, leaving but little or no room for recent cases, and it is from the latter class of patients that we may reasonably expect a very large per cent of recoveries if placed early under favorable surroundings and appropriate treatment. Of the patients remaining in this institution May 31, 1900, about 86 per cent may be classed as incurable.

While the year just passed has witnessed improvements in and about the institution, we must not be unaware of the fact that we have not yet reached that degree of perfection which we would desire. Many things remain to be done; many anticipations to be realized. The one thing we should keep prominently in view is that this is a hospital for the treatment of the insane rather than a home for the accommodation of incurables. There being a limited amount of room, we should at least limit the number to be admitted of those that are manifestly hopeless. If there were sufficient room it would not be necessary or desirable to deny admission to any, but as there is not, these discriminations should be made in favor of recent and presumably curable cases. If this discrimination is not made, in a very short time the hospital will be entirely filled with chronics and incurables, and then those who might be benefited by hospital residence and treatment will be permanently excluded, and they in turn swell the already too large number of the most pitiable of human beings. This policy would in individual cases seem to work a hardship, but when considered from the broad view of accomplishing the greatest amount of good for the very limited amount of money at our disposal, it must be considered as correct and should be adopted.

Besides the improvement in building there has been much work done on the yard and garden in grading and terracing, a system of sewerage, planting of fruit and shade trees, as well as of shrubbery and many flowers of different varieties, most of the labor having been done by the patients, all of which has afforded healthful occupation to a number of the inmates, besides lending a more attractive appearance to the grounds and comfort to the unfortunates; and the garden has afforded a great abundance of delicious vegetables, which have materially reduced the cost of maintenance of the institution. Not only have the patients been employed by outside work, but they have been occupied also inside by sweeping, scrubbing, doing dining-room and laundry work. The female patients have been engaged in household duties, sewing, and fancy work, according to individual capacity. At all times much care is observed not to overtax any patient.

Much the greater number of patients are idle, because their mental and physical condition renders them incapable of doing any kind of work. When the weather permits, the inmates are allowed a daily walk outside the hospital grounds, and every month dancing, music, and other entertainments are allowed, much to the enjoyment of the patients.

The present available room, principally in the new addition, will accommodate about 100 persons, and 20 more may be afforded adequate quarters as soon as we have the old building renovated. The old building, known as the "administration" building, is now almost uninhabitable because of its being out of repair. For about five years this part of the institution was very much overcrowded, literally filled from cellar to attic, and during this period but little repairing was possible. The floors, doors, and much of the other woodwork must be put in new, partition walls changed, almost if not all of the building must be replastered, fixtures and plumbing in great part replaced in toilet and bath rooms. Many changes and repairs and renovations are most urgently needed to meet the present demand.

During the meeting of our last legislature strenuous efforts were made to secure a special appropriation sufficient to make the above-mentioned repairs, but, I am sorry to say, we were disappointed.

We have at present about 6 acres in garden and 3 acres in alfalfa, cared for by some of the few male patients capable of doing manual labor, the returns of which make a very noticeable reduction in our running expenses. We are now feeling, more than ever before, the lack of sufficient land for garden and farming purposes, and will feel this need still more in the early future. If an additional tract of land, under irrigation, though small, could be placed at our disposal, enough could be produced at a very slight expense to keep many hogs, poultry, and more milch cows, and beef might be grown and fattened, which would further diminish the running expenses of the plant.

I will presume to suggest that measures be taken to secure not less than 60 acres more land under ditch.

Very respectfully,

W. R. Tipton,
Medical Superintendent.

The Board of Directors of the New Mexico Insane Asylum.

Las Vegas, N. Mex., *May 14, 1900.*

Dear Sir: I have the honor to submit the following report of the transactions of the department under my charge of the Territorial Insane Asylum from May 1, 1899, to April 30, 1900:

The Territorial Insane Asylum has about 19 acres of land, 8 of which are being used in the cultivation of a vegetable garden, 3½ acres in alfalfa, the remainder being used for parks and pasture.

About 200 shade trees, taken from the nursery, 50 fruit trees, 24 ornamental trees (East India ash), and 24 flowering shrubs have been set out on the grounds.

Garden and live-stock products for the year amounted to $2,263.60. During the year we have, with the labor of patients, constructed an artificial lake, from which we irrigate 3 acres of alfalfa. We also have one-half acre of Turkestan alfalfa, the seed having been furnished us by the Department of Agriculture, Washington, D. C. This alfalfa grows on the driest land without irrigation. It is my opinion that this particular kind of alfalfa will grow on the driest mesas of this Territory without irrigation.

The new kitchen and bake oven are now about complete and ready for use—a great improvement over the old.

A carpenter shop has been fitted up in the basement of the south wing, in which much work is being done by the patients, both in repairs and in manufacturing articles for use in the institution.

A contract has been let for the sinking of a well 400 feet unless a sufficient flow of water be struck sooner. The well is down about 300 feet, having struck water at about 100 feet, but not in sufficient quantity to supply the institution. Should we succeed in striking a sufficient flow to supply the institution, our annual expense will be reduced $450.

It is impossible to mention the large number of small improvements and repairs that have been made to improve the place and add to the comfort and convenience of the patients and employees.

Respectfully submitted.

G. W. WARD, *Steward.*

The PRESIDENT OF THE BOARD OF DIRECTORS,
INSANE ASYLUM OF NEW MEXICO.

JUDICIAL AFFAIRS.

SANTA FE, N. MEX., *July 17, 1900.*

SIR: In compliance with your request for information regarding the business of the supreme court of the Territory of New Mexico, and of the New Mexico Bar Association, I have the honor to respectfully submit the following statement:

SUPREME COURT.

At the date of my last report to you the court then had several cases under advisement, nearly all of which, and also most of the cases filed and heard since then, have been finally determined, as will be seen below.

At the beginning of the fiscal year just ended the status of the docket of this court was as follows:

Number of cases under advisement	22
Continued to the regular term	3
Cases to be heard at August 28, 1899, adjourned session	3
New cases filed during the fiscal year	58
Total	86

The number of cases above enumerated were brought into this court as follows, to wit:

From the first judicial district court—		
By appeal	3	
By writ of error	1	
		4
From the second judicial district court—		
By appeal	31	
By writ of error	12	
		43
From the third judicial district court—		
By appeal	4	
By writ of error	1	
		5

From the fourth judicial district court—		
By appeal	7	
By writ of error	7	
		14
From the fifth judicial district court—		
By appeal	11	
By writ of error	9	
		20
Total		86

The status of the docket of this court at the close of the fiscal year was as follows, showing the disposition and standing of the cases above referred to:

Finally determined, by affirmance	27
Finally determined, by dismissal	6
Reversed, with instructions to the lower court to grant a new trial	7
Reversed, with instructions to the lower court to dispose of said cases in accordance with opinion	5
Under advisement by the court	35
Under advisement by the court upon motion only	3
Continued to the next regular term	1
Returnable to next regular term	2
Total	86

Of the cases finally determined by the court by affirmance, motions of rehearing have been filed in three cases and the court has not as yet passed on said motions, and two of the said cases have been taken to the Supreme Court of the United States by appeal.

The court at the last regular session heard all the cases then on the docket and has disposed of the greater part of them, as shown above.

The court, by rule, has fixed the first day of each regular term for the examination and admission of all applicants for admission to the bar of this court, and out of the 25 applicants then awaiting action by the committee, 24 have been admitted, 1 not appearing, owing to illness.

The next regular term of this court will begin on the first Wednesday after the first Monday in January, which will be Wednesday, the 9th day of January, 1901, and the court will then meet at its permanent quarters in the new capitol building, where it is now domiciled.

THE BAR ASSOCIATION.

The New Mexico Bar Association was organized January 6, 1886, and has met annually since, at the same time as the supreme court, which always adjourns on the first day of the term in order to allow the association to use its rooms for its meetings.

This association has been a working body from its inception, not given to banquets or celebrations of any kind, the only exception being at its last session, in January, 1900, when it gave an elaborate banquet in honor of Hon. H. D. Estabrook, of the Chicago bar, who came to Santa Fe expressly to address the association and delivered a masterly oration on "The New Mexico lawyer, his duties and opportunities," which was also a strong argument for the admission of New Mexico as a State; and at every meeting it has accomplished something tangible for the good of the people and the advancement of the profession.

It has twice, by request of the supreme court, prepared the rules of practice for that court and the district courts, including the rules for admission to the bar, which are similar to the Illinois statute, requiring an oral examination as well as written before the supreme court when in session. The examination is conducted by a committee of five appointed by the court—one from each judicial district; and these rules have proved very salutary during the three years they have been in operation.

At the request of the United States Court of Private Land Claims, it also prepared the rules of practice for that high tribunal.

This association also prepared the present Code of Civil Procedure, which was enacted into law in 1897 by the legislature without amendment and which has given almost universal satisfaction, as it has greatly expedited business and decreased the cost of litigation.

It has originated and recommended to the legislature a number of other bills that have become laws, and it is a noticeable fact that none of the laws so recommended have been amended or repealed.

This association is composed of 120 members, including all the justices of the supreme court and most of the former judges, as well as one of the justices of the new supreme court of the island of Porto Rico in the person of Hon. Luis Sulzbacher, who was one of its original members.

It is an organization of which the bench, bar, and people of the Territory are justly proud, and its printed minutes of proceedings are much sought after, as the committee on "Histories of the bench and bar" has collected with great care and after diligent effort many interesting facts of historical value relative to distinguished jurists who lived in New Mexico and assisted in shaping its laws after it became an American Territory in 1850. Edward L. Bartlett, the present solicitor-general, was mainly instrumental in forming this association, of which he was the first secretary, a position to which he has been annually elected since, and to his untiring efforts is due in a large degree the success and prosperity of the association.

Trusting that the above information regarding the supreme court of the Territory and its bar association will prove satisfactory, I remain, awaiting your further command,

Yours, most respectfully,

José D. Sena,
Clerk Supreme Court of New Mexico.

Hon. M. A. Otero,
Governor of New Mexico.

Clerk's Office, First Judicial District Court,
Santa Fe, N. Mex., July 23, 1900.

Sir: Responding to your favor of the 15th instant, in which you request a report of the transactions of this office for the fiscal year ending June 30, 1900, I beg leave to hand you the same herewith attached.

It may be noticed with a great deal of pride that the criminal business in this district has been decreasing considerably for the past two years, and it may be more especially noticed in the county of Santa Fe, wherein on the 1st day of July, 1898, 72 criminal cases were pending, while on the 1st day of July, 1899, there were but 27 cases pending, and on the 1st day of July, 1900, there were but 29 cases pending. The same amount of proportionate decrease may also be noticed in the other three counties of the district.

At the same time it may also be noticed that an unusual amount of new business on the criminal side of the docket has been instituted within the past fiscal year, but this is to be accounted for by the numerous indictments for the violation of the liquor and Sunday law. These, however, can not be construed as criminalities, but simply as misdemeanors, and when we have taken away the 193 cases of this class it will be seen readily that the real amount of criminal business in this district has diminished considerably.

The small number of cases that have been appealed to the supreme court of the Territory from this district (reference to which will undoubtedly be made by the clerk of the supreme court) will show the high integrity of this court, to which I beg to draw your attention with pleasure.

Trusting that this report may be satisfactory to you,

I remain, yours, very respectfully,

A. M. Bergère.

Hon. Miguel A. Otero,
Governor of New Mexico, Santa Fe, N. Mex.

Report of business transacted in the first judicial district court of the Territory of New Mexico, in and for the respective counties of Santa Fe, Taos, Rio Arriba, and San Juan, for the fiscal year ending June 30, 1900.

United States.

CIVIL.

Causes pending June 30, 1899	4
Causes filed from July 1, 1899, to June 30, 1900	1
Causes pending June 30, 1900	5

CRIMINAL.

Causes pending July 1, 1899	8
Causes filed from July 1, 1899, to June 30, 1900	5
Causes disposed of by dismissal	4
Causes disposed of by trial	5
Causes pending June 30, 1900	4

TERRITORIAL.

SANTA FE COUNTY.

CIVIL.

Causes pending July 1, 1899	157
Causes filed from July 1, 1899, to June 30, 1900	85
Causes disposed of by dismissal	66
Causes disposed of by trial and judgment	46
Causes pending June 30, 1900	130

CRIMINAL.

Causes pending July 1, 1899	27
Causes filed from July 1, 1899, to June 30, 1900	190
Causes disposed of by dismissal	97
Causes disposed of by trial	45
Causes disposed of by change of venue	46
Causes pending June 30, 1900	29

TAOS COUNTY.

CIVIL.

Causes pending July 1, 1899	30
Causes filed from July 1, 1899, to June 30, 1900	28
Causes disposed of by dismissal	17
Causes disposed of by trial and judgment	12
Causes pending June 30, 1900	29

CRIMINAL.

Causes pending July 1, 1899	21
Causes filed from July 1, 1899, to June 30, 1900	17
Causes disposed of by dismissal	20
Causes disposed of by trial	5
Causes pending June 30, 1900	13

RIO ARRIBA COUNTY.

CIVIL.

Causes pending July 1, 1899	29
Causes filed from July 1, 1899, to June 30, 1900	21
Causes disposed of by dismissal	17
Causes disposed of by trial and judgment	8
Causes pending June 30, 1900	25

CRIMINAL.

Causes pending July 1, 1899	19
Causes filed from July 1, 1899, to June 30, 1900	45
Causes disposed of by dismissal	29
Causes disposed of by trial	9
Causes pending June 30, 1900	26

SAN JUAN COUNTY.

CIVIL.

Causes pending July 1, 1899	16
Causes filed from July 1, 1899, to June 30, 1900	24
Causes disposed of by dismissal	6
Causes disposed of by trial and judgment	17
Causes pending June 30, 1900	17

CRIMINAL.

Causes pending July 1, 1899	11
Causes filed from July 1, 1899, to June 30, 1900	17
Causes disposed of by dismissal	10
Causes disposed of by trial	6
Causes pending June 30, 1900	12

RECAPITULATION.

CIVIL.

Causes pending July 1, 1899:

United States	4
Santa Fe County	157
Taos County	30
Rio Arriba County	29
San Jaun County	16
Total	236

Causes filed from July 1, 1899, to June 30, 1900:

United States	1
Santa Fe County	85
Taos County	28
Rio Arriba County	21
San Juan County	24
Total	159

Causes disposed of by trial and dismissal:

Santa Fe County	112
Taos County	29
Rio Arriba County	25
San Juan County	23
Total	189

Causes pending June 30, 1900:

United States	5
Santa Fe County	130
Taos County	29
Rio Arriba County	25
San Juan County	17
Total	206

CRIMINAL.

Causes pending July 1, 1899:

United States	8
Santa Fe County	27
Taos County	21
Rio Arriba County	19
San Juan County	11
Total	86

Causes filed from July 1, 1899 to June 1, 1900:

United States	5
Santa Fe County	190
Taos County	38
Rio Arriba County	45
San Juan County	17
Total	295

Causes disposed of by trial and dismissal:

United States	9
Santa Fe County (including change of venue)	190
Taos County	25
Rio Arriba County	38
San Juan County	16
Total	278

Causes pending June 30, 1900:	
United States	4
Santa Fe County	29
Taos County	13
Rio Arriba County	26
San Juan County	12
Total	84

ALBUQUERQUE, N. MEX., *July 24, 1900.*

SIR: In compliance with your request of July 15, I have the honor to submit the following report of business transacted in the second judicial district court of the Territory of New Mexico from July 1, 1899, to July 1, 1900:

DISTRICT COURT, BERNALILLO COUNTY.

Criminal cases pending on docket June 30, 1899		86
Criminal cases instituted during year ending June 30, 1900		116
		202
Disposed of:		
Convictions	48	
Acquittals	23	
Dismissals	77	
		148
Balance cases pending June 30, 1900		54

Civil actions pending June 30, 1899		314
Civil actions filed during year ending June 30, 1900		298
		612
Disposed of:		
Tried	200	
Dismissed	29	
		229
Balance cases pending June 30, 1900		383

DISTRICT COURT, VALENCIA COUNTY.

Criminal cases pending on docket June 30, 1899		18
Criminal cases instituted during year ending June 30, 1900		16
		34
Disposed of:		
Convictions	2	
Acquittals	2	
Dismissals	16	
		20
Balance cases pending June 30, 1900		14

Civil actions pending June 30, 1899		42
Civil actions filed during year ending June 30, 1900		27
		69
Disposed of:		
Tried	18	
Dismissed	8	
		26
Balance cases pending June 30, 1900		43

DISTRICT COURT (UNITED STATES), SECOND JUDICIAL DISTRICT.

Criminal cases pending June 30, 1899		2
Criminal cases instituted during year ending June 30, 1900		26
		28
Disposed of:		
Convictions	6	
Acquittals	5	
Dismissals	3	
		14
Balance cases pending June 30, 1900		14
Civil cases pending June 30, 1899:		
Chancery	2	
Law	9	
Bankruptcy	5	
		16
Civil cases instituted during year ending June 30, 1900:		
Law	2	
Bankruptcy:		
Voluntary	5	
Involuntary	1	
Other actions	1	
		9
Total		25
Disposed of, tried, etc		11
Balance cases pending June 30, 1900		14

Respectfully,

Harry P. Owen,
Clerk District Court, Second Judicial District, New Mexico.

Hon. M. A. Otero,
Governor of New Mexico, Santa Fe, N. Mex.

Business transacted in third judicial district during year ending June 30, 1900.

DONA ANA COUNTY.

Civil cases pending July 1, 1899	31
Civil cases filed from July 1, 1899, to June 30, 1900	61
	92
Disposed of	58
Balance pending July 1, 1900	34
Chancery cases pending July 1, 1899	6
New cases filed	0
	6
Disposed of	5
Balance pending July 1, 1900	1
Criminal cases pending July 1, 1899	34
Criminal cases filed from July 1, 1899, to June 30, 1900	88
	122
Disposed of	92
Balance pending July 1, 1900	30

GRANT COUNTY.

Civil cases pending July 1, 1899	60
Civil cases filed from July 1, 1899, to June 30, 1900	109
	169
Disposed of	87
Balance pending July 1, 1900	82
Chancery cases pending July 1, 1899	20
New cases filed	0
	20
Disposed of	5
Balance pending July 1, 1900	15
Criminal cases pending July 1, 1899	34
Criminal cases filed from July 1, 1899, to June 30, 1900	141
	175
Disposed of	129
Balance pending July 1, 1900	46

SIERRA COUNTY.

Civil cases pending July 1, 1899	4
Civil cases filed from July 1, 1899, to June 30, 1900	13
	17
Disposed of	8
Balance pending July 1, 1900	9
Chancery cases pending July 1, 1899	1
New cases filed	0
Balance pending July 1, 1900	1
Criminal cases pending July 1, 1899	35
New cases filed from July 1, 1899, to June 30, 1900	23
	58
Disposed of	35
Balance pending July 1, 1900	23

OTERO COUNTY.

Civil cases pending July 1, 1899	1
Civil cases filed from July 1, 1899, to June 30, 1900	36
	37
Disposed of	19
Balance pending July 1, 1900	18
Chancery	0
Criminal cases pending July 1, 1899	0
Criminal cases filed from July 1, 1899, to June 30, 1900	88
	88
Disposed of	34
Balance pending July 1, 1900	54

Statement of business done in the fifth judicial district for the fiscal year ending June 30, 1900.

Civil cases pending July 1, 1899:

United States	7
Socorro County	90
Lincoln County	68
Chaves County	20
Eddy County	65
Total	250

Civil cases docketed during year:

United States	15
Socorro County	56
Lincoln County	38
Chaves County	52
Eddy County	37
Total	198

Civil cases disposed of during year:

United States	7
Socorro County	59
Lincoln County	61
Chaves County	47
Eddy County	67
Total	241

Civil cases pending June 30, 1900:

United States	15
Socorro County	87
Lincoln County	45
Chaves County	25
Eddy County	35
Total	207

Criminal cases pending July 1, 1899:

United States	4
Socorro County	23
Lincoln County	27
Chaves County	30
Eddy County	37
Total	121

Criminal cases instituted during year:

United States	0
Socorro County	52
Lincoln County	17
Chaves County	94
Eddy County	68
Total	231

Criminal cases disposed of during year:

United States—		
Convictions	0	
Dismissals, etc	3	
		3
Socorro County—		
Convictions	24	
Dismissals, etc	23	
		47

Criminal cases disposed of during year—*Continued.*

Lincoln County—		
Convictions	0	
Dismissals, etc	28	
		28
Chaves County—		
Convictions	33	
Dismissals, etc	50	
		83
Eddy County—		
Convictions	18	
Dismissals, etc	54	
		72
Total		233

Criminal cases pending June 30, 1900:

United States	1
Socorro County	28
Lincoln County	16
Chaves County	41
Eddy County	33
Total	119

Total civil and criminal cases pending July 1, 1900:

United States	11
Socorro County	113
Lincoln County	95
Chaves County	50
Eddy County	102
Grand total	371

Total cases docketed during year:

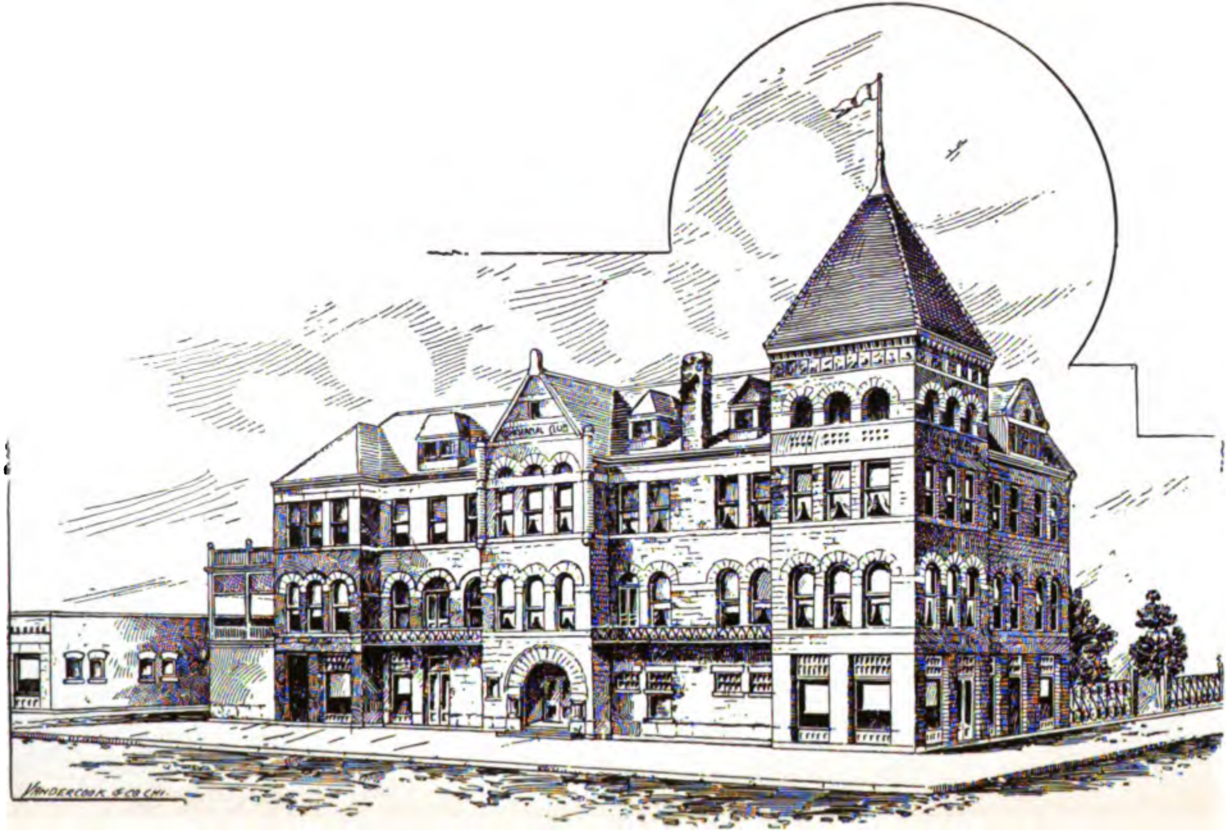
United States	15
Socorro County	108
Lincoln County	55
Chaves County	146
Eddy County	105
Grand total	429

Total civil and criminal cases disposed of during year:

United States	10
Socorro County	106
Lincoln County	89
Chaves County	130
Eddy County	139
Grand total	474

Total civil and criminal cases pending in the district June 30, 1900:

United States	16
Socorro County	115
Lincoln County	61
Chaves County	66
Eddy County	68
Grand total	326



COMMERCIAL CLUB, ALBUQUERQUE.

UNITED STATES COURT OF PRIVATE LAND CLAIMS.

SCHEDULE No. 1.—*List of cases in New Mexico district decided by the Court of Private Land Claims from October 1, 1899 (the date of last report to the governor of New Mexico), to May 15, 1900.*

Private land claim No.	Name of grant.	Claimed.	Confirmed.	Rejected.
		Acres.	*Acres.*	*Acres.*
87	Sierra Mosca [1]	47,743	....	47,743
99-152-233	Petaca [1]	37,000	1,000	36,000
108	Cebolla [1]	27,000	....	27,000
112	Cuyamungue [1]	1,086	226	860
114 [2]	San José del Encinal	12,207	....	12,207
144-252	San Pablo y Nacimiento	131,000	....	131,000
168	Santa Teresa	9,681	9,681	....
203-218	San Joaquin del Nacimiento	131,725	....	131,725
212	Pueblo de Quemado	288,000	....	288,000
227	José Ignacio Alari	1,000	....	1,000
228 [2]	Roque Jacinto Jaramillo	10,000	....	10,000
257-263 [3]	Bartolomé Trujillo or San José de Gracia	2,000	....	2,000
278	José de Leyba	18,000	....	18,000
	Total	716,442	10,907	705,535

[1] Rejected under mandate from Supreme Court of the United States.
[2] Confirmation declined because wholly within confirmed grant.
[3] Dismissed.

SCHEDULE No. 2.—*Grant surveys approved in New Mexico district during same period.*

Private land claim No.	Name of grant.	Area in survey.
		Acres.
31	Luis Jaramillo	10,693.98
43	Polvadera	35,761.14
116	Talaya Hill	319.20
	Total	46,774.32

SCHEDULE No. 3.—*Cases on docket of New Mexico district not finally disposed of; also status of each of said cases.*

A.—PENDING FOR PRIMARY DETERMINATION.

Private land claim No.	Name of grant.	Acreage claimed.	Remarks.
8	Town of Albuquerque	17,361	Remanded by Supreme Court (171 U.S., 685).
25-60-198	San Miguel del Bado	3,000	This represented estimate area of allotments to determine extent of which cause was remanded by Supreme Court (167 U.S., 278).
99-153-233	Petaca	1,000	Same as last. (See 175 U.S., 500.)
107	Cañon de Chama	2,736	Same as last. (See 167 U.S.)
211	Santo Domingo de Cundiyó	....	No estimate of acreage possible under description given.
215	Bishop's ranch	600	
260	Juan Joseph Moreno	....	Do.
262	Francisco Xavier Romero	....	Do.
270	Sitio de Navajo	....	Do.
279	Joaquin Mestas	3,632	
	Total	28,329	

B.—CASES TRIED AND SUBMITTED AND UNDER ADVISEMENT BY THE COURT IN NEW MEXICO DISTRICT.

Private land claim No.	Name of grant.	Area claimed.
109	Conejos (mostly in Colorado)	2,500,000

SCHEDULE No. 3.—*Cases on docket of New Mexico district not finally disposed of; also status of each of said cases*—Continued.

C.—GRANTS PENDING ON SURVEY IN NEW MEXICO DISTRICT.

Private land claim No.	Name of grant.	Estimated area confirmed.
5	Arroyo Hondo	20,171
15	Antonio Sedillo	86,606.21
16	Gijosa	15,540.97
17	Cañada de Santa Clara	1,343.03
24	Doña Ana Bend	29,323
55	Cevilleta	285,431.36
67	Felipe Tafoya	4,340
70	Las Lagunitas	43,653.03
74	Cañon de Carnué	1,000
75	San Mateo Spring	4,340
91 and 183	Juan Salas or Alamitos	500
122–148	Peñasco Largo	665
130–182	Ojo de San José	4,340
157	El Ranchito	8,000
179	Juan Bautista Valdez	1,200
205	Cañada de Cochiti	15,000
229	Angostura	2,319
264	Bartolomé Sanchez	5,000
267	Santa Rosa de Cubero	5,000
269–90	Las Huertas	20,000
272	Miguel and Santiago Montoya	2,600
273	Lo de Padilla	27,000
274	Antonio Gutierrez	12,000
275	Joaquin Sedillo	8,000
	Total	608,372.60

D.—CASES ON APPEAL FROM NEW MEXICO DISTRICT.

Private land claim No.	Name of grant.	Area claimed.	By whom appealed.
44–128–135–154–216	Las Animas	4,096,340	Claimants.
134–184–185	Santo Domingo and San Felipe	20,000	Do.
152	Estancia	415,036	Do.
	Total	4,531,376	

E.—GRANTS CONFIRMED, BUT CONFIRMATION NOT YET FINAL.

Private land claim No.	Name of grant.	Area confirmed.
137	Santo Tomas de Iturbide	6,680
138	José Manuel Sanchez Baca	4,340
149	Fernando de Taos	1,000
150–193	Refugio Colony	26,130
151	Mesilla Colony	17,361
168	Santa Teresa	9,681
194	Santa Cruz	1,000
	Total	66,192

RECAPITULATION.

	Number.	Area.
Cases not tried	10	28,329
Cases under advisement	1	2,500,000
Cases on survey	24	608,372.60
Cases on appeal	3	4,531,376
Cases, confirmation not final	7	66,192
Total pending in New Mexico district	45	7,729,269.60

UNITED STATES LAND OFFICES.

Abstract of business transacted at the United States land office at Santa Fe, N. Mex., during fiscal year ending June 30, 1900.

County.	Homesteads.	Desert lands.	Coal land.	Selections, act of June 4, 1897.	Territorial selections.	Total.
San Miguel	21,905			80	908	22,893
Colfax	19,850	360	160	160		20,530
Mora	15,652	1,436		260		17,348
Guadalupe	7,015	79		160		7,254
Santa Fe	1,818		820			2,138
Bernalillo	5,055	160	4,919	1,440		11,574
Rio Arriba	6,821					6,821
Taos	640			40		680
San Juan	4,058	1,715	160			5,933
Valencia	3,298			80		3,378
Socorro	1,680			320	1,058	3,058
Total	87,792	3,750	5,559	2,540	1,966	101,607

Statement of the business transacted at the United States land office at Clayton, N. Mex., for the fiscal year ending June 30, 1900.

Class of entries.	No.	Acres.	Commission.	Fees.	Total.
Excess payment on homestead and other locations and entries	38	89.57			$111.99
Original desert entries	5	801.41			200.35
Final desert entries	2	640			640.00
Homesteads converted to cash (Rev. Stat., 2301)	14	1,676.29			2,095.39
Sales, isolated tracts	4	240.47			300.59
Total	63	3,447.74			3,348.32
Original homestead entries	588	92,010.88	$3,450.53	$5,800.00	9,250.53
Final homestead desert entries	80	12,935.09	438.88		483.88
Final timber culture	1	120	4.00		4.00
Reservoir declarations	25		75.00		75.00
Testimony			330.95		330.95
Total all classes	757	108,513.71	4,344.36	5,800.00	13,492.68
Salary, fees, and commission of register and receiver					2,705.63
Expense of depositing public moneys					8.55
Incidental expenses					318.02
Total					3,032.20

Statement of the business transacted at the United States land office at Las Cruces, N. Mex., for the fiscal year ending June 30, 1900.

The amount of land sold or disposed of during year . . . acres	254,900.05
Amount of money received and collected during year	$9,223
Number of homestead entries filed	252
Number of final homestead entries	106
Number of desert land entries	6
Mineral applications	14
Mineral entries	8
Cash entries	13

Respectfully submitted,

EMIL SOLIGNAC, *Register.*

Statement of business transacted at the United States land office at Roswell, N. Mex., for the fiscal year ending June 30, 1900.

Counties.	Area unappropriated and unsurveyed.			Reserved area.	Total area disposed of.	Total area of land district.	Land disposed of during fiscal year 1900.	Entered under homestead laws, 1900.
	Surveyed.	Unsurveyed.	Total.					
	Acres.	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Acres.*
Chaves	4,879,548	2,120,353	6,999,901	3,280	537,247	7,529,000	26,825	18,683
Eddy	1,798,435	2,253,741	4,052,176	6,300	269,402	4,320,000	10,118	7,998
Guadalupe	6,720	....	6,720	....	1,280	8,210	....	....
Lincoln	2,163,341	118,354	2,281,695	106,924	336,199	3,176,000	17,761	17,585
Otero	222,909	1,377,549	1,600,458	208,440	13,981	1,652,000	1,921	1,921
Valencia	145,040	....	145,040	....	12,800	158,000	....	....
Total	9,215,993	5,869,997	15,085,990	324,944	1,170,909	16,843,210	56,625	46,187

Respectfully submitted,

Howard Leland, *Register.*
David L. Geyer, *Receiver.*

TERRITORIAL FINANCES.

Territory of New Mexico, Office of the Treasurer,
Santa Fe, N. Mex., July 26, 1900.

Sir: I have the honor to submit to you a statement of the Territorial treasury at the end of the second quarter of the fifty-first fiscal year, June 2, 1900, with estimates of revenues and expenditures for the second half of the fifty-first fiscal year, ending December 1, 1900.

Estimating the expected revenue for the second half of the fifty-first fiscal year on a very conservative basis, the statement shows an expected surplus of $102,730.81 at the end of the fifty-first fiscal year, December 1, 1900.

In this connection it may not be amiss to compare this result with prior years:

Year.	Revenues.	Expenditures.
1893	$283,124.92	$355,683.27
1894	334,218.73	262,573.03
1895	237,976.56	330,528.32
1896	224,659.97	246,421.17
1897	236,678.25	295,318.84
1898	287,046.96	347,315.15

In his report December 1, 1894, to the governor the then treasurer, Hon. R. J. Palen, says:

"This statement shows that the balances on hand at the date of my first report, December 5, 1892, and the regular receipts of the past two years were ample to meet the appropriations of 1893 and 1894, the payment of which in full, as required, having been interrupted only by the locking up of $60,000 of Territorial funds in the suspended Territorial depository July 3, 1893, although at that time this was nearly half the Territorial cash balance on hand."

In his report December 3, 1898, to the governor the then treasurer, Hon. Samuel Eldodt, among other things, says the following:

"I respectfully call your attention to the importance of providing additional funds for the interest fund, which is now in arrears to the extent of $40,000, and will be at the close of the present fiscal year, on the first Monday of March, 1899, to the extent of $55,000, as shown by the following summary:

Treasurer's notes outstanding, given for loans to complete the payment of coupons	$28,000
Interest due up to date of this report	1,874
Interest due January 1, 1899	9,939
Interest due March 1, 1899	15,430
Total arrearage to close of fiscal year	55,243

"About $25,000 of this arrearage existed two years ago and the attention of the last legislature was called to the necessity of making some provision for its payment, but no action was taken. The remainder of the arrearage has arisen during the past two years from the failure of the cash receipts from taxation to equal the appropriations. * * * A tax of one-fourth of one mill will be ample to begin with and the rate can be reduced from year to year. It is of the utmost importance that this or some other provision be made for this fund, as it will not be possible for the treasurer much longer to take care of the coupons as they mature by the make-shift processes which have answered for the past four years."

Acting on this suggestion, the thirty-third legislative assembly passed an act (Chapter LIX) entitled "An act to provide for the payment of the deficiencies in the Territorial appropriations of the various fiscal years up to and including the forty-ninth fiscal year (H. B. 142)," approved March 16, 1899, under the provisions of which the Territory issued certificates of indebtedness bearing 6 per cent interest, redeemable one-fifth each year for the next five following years, viz:

Series A, to complete interest fund	$54,000
Series B, to provide for other deficiencies	69,000
Total	123,000

The statement submitted herewith shows that on or after March 1, 1900, $24,500 of these certificates were redeemed.

The Territory further bought $20,000 par value of capitol contingent fund bonds at 108 per cent at a cost of $21,600. There are still $30,000 of these bonds, due April 1, 1902, outstanding. In the capitol contingent fund there is to-day the sum of $14,046.80. A tax levy has been made this year to more than provide the balance of $15,953.20 needed to redeem the $30,000 still outstanding. A sufficient tax levy has also been made, beginning with this year, to provide for the ultimate redemption of $200,000 capitol building bonds, due one-half each September 1, 1904, and March 1, 1905.

By March 1, 1905, the reduction of the Territorial funded debt will be:

Capitol building bonds, 7 per cent	$200,000
Capitol contingent fund bonds, 6 per cent	50,000
Certificates of indebtedness, 6 per cent	123,000
Total	373,000

which represents a saving of $24,380 a year interest charges alone.

This most gratifying showing is the result of the wise and foresighted legislation of the last legislative assembly, by which for the first time in the history of the Territory its business is on a cash basis and all its obligations provided for, with no deficiencies to be met.

Very respectfully, your obedient servant,

J. H. VAUGHN,
Territorial Treasurer.

Hon. MIGUEL A. OTERO,
Governor of New Mexico.

Statement of the Territorial treasury at the end of the second quarter of the fifty-first fiscal year, June 2, 1900, with estimates of revenues and expenditures for the second half of the fifty-first fiscal year, ending December 1, 1900.

Arithmetical product of assessment for the year 1899		$476,848.02
Total appropriations for the fifty-first fiscal year		341,496.00
Total receipts for first half of fifty-first fiscal year		284,992.69
Total taxes collected first half fifty-first fiscal year (54.7 per cent of total assessment)		260,818.33
Total expenditures for the first half of the fifty-first fiscal year		273,409.82
Expended as follows:		
On regular appropriations	$178,583.64	
On sheep and cattle funds	8,474.36	
On certificates of indebtedness (note 1)	28,982.00	
On capitol contingent fund bonds bought (note 2)	20,000.00	
On capitol rebuilding fund	37,369.82	
		273,409.82

Statement of the Territorial treasury at the end of the second quarter of the fifty-first fiscal year, June 2, 1900, etc.—Continued.

Cash balance on hand June 2, 1900		$150,969.39
Less the following trust funds:		
Public-school fund	$7,534.05	
Cattle-indemnity fund	4,790.69	
Sheep sanitary fund	718.35	
Capitol contingent fund	12,152.73	
Total		25,195.82
Net available cash for unexpended appropriations		125,773.57
Unexpended appropriations to end of fifty-first fiscal year		162,912.36
Cash on hand now		125,773.57
Cash needed to meet appropriations on or before December 1, 1900		37,138.79
(See note 3, dated July 16, 1900.)		
Net cash on hand June 2, 1900, available for unexpended appropriations		125,773.57
Expected revenue for second half of fifty-first fiscal year, 20 per cent of assessment (all expected revenue from miscellaneous sources omitted)		95,369.60
		221,143.17
Less unexpended appropriations to December 1, 1900		162,912.36
Net surplus at the end of fifty-first fiscal year		58,230.81
Add reduction of funded debt:		
Redeemed certificates of indebtedness		24,500.00
Capitol contingent fund bonds bought		20,000.00
Total estimated surplus at the end of fifty-first fiscal year.		102,730.81

(Note 1): Certificates of indebtedness—

Redeemed certificates of indebtedness	$24,500.00
Interest paid on certificates of indebtedness	4,482.00
Total	28,982.00

(Note 2): Capitol contingent fund bonds—

Bought $20,000 par value of capitol contingent fund bonds at 108 per cent	21,600.00
Premium of 8 per cent charged to interest account	1,600.00
Net reduction of debt	20,000.00

(Note 3, dated July 16, 1900):

Total taxes collected for first half of fifty-first fiscal year	260,818.33
Taxes collected from June 2, 1900, to July 16, 1900	49,667.15
Total	310,485.48

(An average of 65.11 per cent on total assessment for the first seven and one-half months of fifty-first fiscal year.)

The collections for the last ten years have averaged as follows:

	Per cent.
1889	72
1890	76
1891	67
1892	74
1893	61
1894	62
1895	50
1896	65
1897	50
1898 omitted, as the fiscal year comprised nine months only.	
Average	64⅑

From June 2, 1900, to July 16, 1900, the Territorial treasury has received, besides the taxes above mentioned, the following:

From miscellaneous sources	$5,632.51
From sources not subject to distribution	4,372.24

Receipts and expenditures for the fiftieth fiscal year, 1899, commencing March 6, 1899, and ending December 2, 1899 (9 months).

	Receipts.	Expenditures.
Licenses		$23.76
Miscellaneous fund		29,570.61
Compensation of assessors' fund	$7,487.19	8,268.14
Interest fund	65,008.65	106,645.86
Interest on deposits	2,188.30	409.71
Penitentiary current expense fund, forty-seventh fiscal year	2,493.33	11,984.52
Penitentiary current expense fund, fiftieth fiscal year	1,581.80	20,584.58
Territorial purposes, forty-seventh fiscal year	2,855.74	
Territorial purposes, fiftieth fiscal year	106,532.68	5,988.70
Sheep sanitary fund	1,345.16	1,400.00
Cattle indemnity fund	8,825.25	9,783.48
Capitol rebuilding fund	60,792.50	34,008.88
Capitol contingent sinking fund	7,342.19	
Special tax	18,414.93	28,526.47
Compilation fund	153.00	102.00
Salary fund	4,974.30	27,366.07
Supreme court fund		819.42
Special purposes, fifty-first fiscal year	39.44	
Charitable institutions, fifty-first fiscal year	28.76	
Interest and sinking fund, certificate of indebtedness	78.62	
Territorial purposes, fifty-first fiscal year	311.54	
Territorial institutions, fifty-first fiscal year	163.12	
Territorial institutions, forty-seventh fiscal year	839.72	
Territorial institutions, fiftieth fiscal year	29,700.00	41,250.56
Deficiency fund	2,475.00	10.00
Penitentiary convicts' earnings	1,664.13	
Transportation of convicts		257.81
Special court fund		1.90
Territorial purposes, forty-eighth fiscal year	561.01	352.71
Territorial institutions, forty-eighth fiscal year	163.71	
Territorial purposes, forty-ninth fiscal year	1,994.07	
Territorial institutions, forty-ninth fiscal year	453.19	
Total	328,467.33	326,855.08

List of banks holding Territorial funds.

Name of bank.	Amount applied for.	Amount of bond.	Balances June 9, 1900.
First National Bank, Santa Fe			$6,937.42
Bank of Commerce, Albuquerque	$28,000	$56,000	23,997.75
First National Bank, Las Vegas	30,000	60,000	25,916.47
First National Bank, Albuquerque	30,000	60,000	25,969.32
Taos County Bank, Taos	10,000	20,000	8,757.07
New Mexico Savings Bank and Trust Co., Albuquerque			781.19
San Miguel National Bank, Las Vegas	30,000	60,000	25,960.00
First National Bank, Raton	15,000	30,000	13,031.58
First National Bank, Roswell	15,000	30,000	12,892.57
National Bank of Commerce, New York			3,398.56
Total			147,641.93

Statement of the funded debt of the Territory of New Mexico, September 3, 1900.

Title of bond.	Amount outstanding.	Date of bond.	Rate of interest.	When interest is payable.	Where principal and interest are payable.	When principal is due.
			Per ct.			
Capitol-rebuilding bonds.	$100,000	Sept. 1, 1884	7	March and September.	National Bank of Commerce, New York.	Sept. 1, 1904
Do	100,000	Mar. 1, 1885	7	do	do	Mar. 1, 1905
Capitol contingent-fund bonds.	30,000	Apr. 1, 1887	6	January and July.	do	Apr. 1, 1902
Current-expense bonds.	50,000	May 2, 1887	6	May	do	May 2, 1907
Do	50,000	Nov. 1, 1887	6	November	do	Nov. 1, 1907
Do	50,000	May 1, 1888	6	May	do	May 1, 1908
Provisional indebtedness bonds.	100,000	May 1, 1889	6	March and September.	do	May 1, 1919
Do	100,000	Sept. 2, 1889	6	do	do	Sept. 2, 1919

Statement of the funded debt of the Territory of New Mexico, September 3, 1900—Cont'd.

Title of bond.	Amount outstanding.	Date of bond.	Rate of interest.	When interest is payable.	Where principal and interest are payable.	When principal is due.
			Per ct.			
Insane asylum bonds.	$25,000	Oct. 1,1891	6	January and July.	National Bank of Commerce, New York.	Oct. 1,1921
Casual-deficit bonds.	101,800	May 1,1893	5	.....do..........	.....do..........	May 1,1923
Refunding bonds..	104,000	July 1,1893	6	.....do..........	.....do..........	July 1,1923
Penitentiary refunding bonds.	71,000	July 1,1894	6	March and September.	.....do..........	July 1,1924
Do............	10,000	Jan. 1,1895	6	.....do..........	.....do..........	Jan. 1,1925
Territorial institutions bonds.	35,000	July 1,1895	5	January and July.	.....do..........	July 1,1925
New Mexico Military Institute bonds.	15,000	.....do.......	5	.....do..........	Western National Bank, New York.	Do.
Insane asylum bonds.	30,000	.....do.......	5	.....do..........	National Bank of Commerce, New York.	Jan. 1,1925
Capitol-rebuilding bonds, first series	25,000	May 1,1895	5	May and November.	.....do..........	May 1,1925
Do............	50,000	Nov. 1,1895	5	.....do..........	.....do..........	Nov. 1,1925
Capitol-rebuilding bonds, second series.	60,000	May 1,1899	4	.....do..........	.....do..........	May 1,1929
Certificate of indebtedness "A".	43,000	Mar. 1,1899	6	March and September.	Territorial Treasury, Santa Fé.	Mar. 1,1904
Certificate of indebtedness "B".	55,300	.....do.......	6	.....do..........	.....do..........	Do.
Total bonded indebtedness.	1,205,100					

List of fire insurance companies which have complied with chapter 49, laws of 1897.

Name of company.	Location.	Security.	
Firemen's Fund Insurance Co.....	San Francisco, Cal	$10,000	Certificate of deposit, First National Bank, Albuquerque.
North British and Mercantile Insurance Co.	London and Edinburg.	10,000	Territorial institution bonds.
Royal Insurance Co................	Liverpool.........	10,000	Capitol contingent-fund bonds.
St. Paul Fire and Marine Insurance Co.	St. Paul, Minn	10,000	$3,000 Grant County current-expense bonds. $7,000 Grant County funding bonds.
American Central Insurance Co...	St. Louis, Mo......	10,000	Certificate of deposit, First National Bank, Las Vegas.
Insurance Company of North America.	Philadelphia, Pa.	10,000	$2,000 provisional-indebtedness bonds. $8,000 Grant County funding bonds.
National Fire Insurance Co.......	Hartford, Conn ...	10,000	City of Silver City, N. Mex., gold-refunding bonds.
Ætna Insurance Co...............	.....do............	10,000	Capitol-rebuilding bonds.
London and Lancashire Fire Insurance Co.	Liverpool.........	10,000	Grant County railroad bonds.
Scottish Union and National Insurance Co.	Edinburg	10,000	$5,000 certificate of deposit, San Miguel National Bank. $5,000 certificate of deposit, First National Bank, Albuquerque.
Hartford Fire Insurance Co.......	Hartford, Conn ...	10,000	Real-estate mortgage.
British America Assurance Co	Toronto, Canada..	10,000	Do.
Atlas Assurance Co...............	London...........	10,000	$1,000 provisional-indebtedness bond. $6,000 casual-deficit bonds. $3,000 refunding bonds.
Liverpool, London and Globe Insurance Co.	Liverpool.........	10,000	$5,000 funding bonds, Socorro County. $5,000 funding bonds, Bernalillo County.
Niagara Fire Insurance Co........	New York, N. Y ..	10,000	Provisional-indebtedness bonds.
Continental Insurance Co.........	.....do............	10,000	Do.
Springfield Fire and Marine Insurance Co.	Springfield, Mass .	10,000	Real-estate mortgage.
Fire Association of Philadelphia, Pa.	Philadelphia, Pa .	11,000	Do.

List of fire insurance companies which have complied with chapter 49, laws of 1897—Cont'd.

Name of company.	Location.	Security.	
Northern Assurance Co	London	$10,000	Certificate of deposit, First National Bank, Santa Fe, N. Mex.
Palatine Insurance Co., Limited	Manchester, England.	10,000	Real-estate mortgage.
Orient Insurance Co	Hartford, Conn	10,000	$5,000 certificate of deposit, First National Bank, Las Vegas, N. Mex. $5,000 real-estate mortgage.
Norwich Union Fire Insurance Society.	Norwich, England	10,000	$5,000 capitol contingent-fund bonds. $5,000 capitol-rebuilding bonds.
		221,000	

Quarterly statement of the Territorial treasurer of New Mexico, second quarter of the fiftieth fiscal year, beginning June 4, 1899, and ending September 2, 1899.

Title of fund or account.	Balances June 4, 1899.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances Sept. 2, 1899.
Miscellaneous fund:						
Forty-second fiscal year	$56.00					$56.00
Forty-third fiscal year	37.50					37.50
Forty-seventh fiscal year	5.00					5.00
Fiftieth fiscal year	10,909.99		$16,712.99		$13,129.96	14,493.02
Compensation of assessors' fund:						
Forty-second fiscal year	7.85					7.85
Fiftieth fiscal year	1,298.53	$5,300.32			3,326.21	3,272.64
Deficit fund, forty-second fiscal year	154.60					154.60
Deficiency fund, fiftieth fiscal year		2,475.00			10.00	2,465.00
Interest fund		11,008.65	26,274.03		40,688.95	33,593.73
Proceeds 37 certificates of indebtedness		37,000.00				
Interest on deposits	566.88	522.73			134.75	954.86
University of New Mexico	975.03		3,167.69		2,731.13	1,411.59
Agriculture College	640.90		2,111.79		640.90	2,111.79
New Mexico School of Mines	640.90		2,111.79		640.90	2,111.79
New Mexico Insane Asylum	2,403.39		7,919.24		6,793.64	3,528.99
New Mexico Military Institute	733.75		2,111.79		1,900.00	945.54
Normal School, New Mexico (Silver City)	640.90		2,111.79		640.90	2,111.79
Normal School, New Mexico (Las Vegas)	640.90		2,111.79		1,811.63	941.06
Penitentiary current-expense fund:						
Forty-seventh fiscal year		768.97			68.50	700.47
Fiftieth fiscal year	7,309.42		16,336.58		10,258.39	15,051.74
Convicts' earnings		859.38				
Support United States prisoners		804.75				
Territorial purposes, forty-seventh fiscal year		1,600.76		$1,600.76		
Territorial purposes, fiftieth fiscal year		76,349.87	1,600.76	75,283.77		2,666.86
Sheep sanitary fund	666.09	811.37			1,400.00	77.46
Cattle-indemnity fund	866.65	5,698.28			2,892.38	3,672.55
Capitol-rebuilding fund	9,034.71				12,354.04	57,473.17
Proceeds 60 bonds		60,792.50				
Territorial institutions, forty-seventh fiscal year		468.70		468.70		
Territorial institutions, fiftieth fiscal year		21,980.14	468.70	21,645.88		802.96
Capitol contingent sinking fund	16,584.16	5,330.49				21,914.65
Special tax	4,911.65	13,452.06			14,861.82	3,501.89
Compilation fund	59.50	51.00				110.50
Salary fund	11,727.62	1,625.85	15,734.31		9,676.81	19,410.97
Supreme court fund	357.55		225.86		88.90	494.51
Special court fund	1,245.71					1,245.71
Total	72,475.18	246,900.82	98,999.11	98,999.11	124,049.81	195,326.19

Quarterly statement of the Territorial treasurer of New Mexico, etc.—Continued.

RECAPITULATION.

Balances June 3, 1899	$72,475.18
Receipts during quarter	246,900.82
Total to be accounted for	319,376.00
Payments during quarter	124,049.81
Balances September 2, 1899	195,326.19

DISPOSITION OF FUNDS.

First National Bank of Santa Fe	$44,522.93
Bank of Commerce, Albuquerque	2,330.24
First National Bank of Las Vegas	29,937.11
First National Bank of Albuquerque	29,923.28
Taos County Bank	9,914.55
New Mexico Savings Bank and Trust Co.	1,583.28
First National Bank of Raton	14,953.07
The Bank of Roswell	14,940.13
National Bank of Commerce of New York	17,260.60
San Miguel National Bank, Las Vegas	29,961.00
Total	195,326.19
Funds not available	1,583.28
Funds available	193,742.91
Deduct interest due	28,260.60
Free cash balance	165,482.31

Quarterly statement of the Territorial treasurer of New Mexico, third quarter of the fiftieth fiscal year, beginning September 4, 1899, and ending December 2, 1899.

Title of fund or account.	Balances Sept. 4, 1899.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances Dec. 2, 1899.
Miscellaneous fund:						
Forty-second fiscal year	$56.00					$56.00
Forty-third fiscal year	37.50					37.50
Forty-seventh fiscal year	5.00					5.00
Fiftieth fiscal year	14,493.02		$2,342.26		$8,018.71	8,816.57
Compensation of assessors' fund:						
Forty-second fiscal year	7.85					7.85
Fiftieth fiscal year	3,272.64	$523.98			2,246.54	1,550.08
Deficit fund, forty-second fiscal year	154.60					154.60
Deficiency fund, fiftieth fiscal year	2,465.00					2,465.00
Interest fund	33,593.73	17,000.00	3,682.20		32,303.70	21,972.23
Interests on deposits	954.86	991.91				1,946.77
University of New Mexico	1,411.59		430.46		1,400.00	442.05
Agriculture College	2,111.79		286.98		2,111.79	286.98
New Mexico School of Mines	2,111.79		286.98		2,111.79	286.98
New Mexico Insane Asylum	3,528.99		1,076.13		4,391.97	213.15
New Mexico Military Institute	945.54		286.98			1,232.52
Normal School, New Mexico (Silver City)	2,111.79		286.98		2,111.79	286.98
Normal School, New Mexico (Las Vegas)	941.06		286.98		1,171.99	56.05
Penitentiary current expense fund:						
Forty-seventh fiscal year	700.47	474.05		$1,174.52		
Fiftieth fiscal year	15,051.74	1,581.80	3,607.27		10,326.14	9,914.67
Territorial purposes, forty-seventh fiscal year		701.94		701.94		
Territorial purposes, fiftieth fiscal year	2,666.86	7,325.16	701.94	10,693.96		
Sheep sanitary fund	77.46	158.84				236.30
Cattle indemnity fund	3,672.55	2,254.32			3,584.04	2,342.83
Capitol rebuilding fund	57,473.17				12,046.38	45,426.79
Territorial institutions, forty-seventh fiscal year		208.83		208.83		
Territorial institutions, fiftieth fiscal year	802.96	1,929.70	208.83	2,941.49		
Capitol contingent sinking fund	21,914.65	491.38				22,406.03
Special tax	3,501.89	1,156.57			897.60	3,760.86
Compilation fund	110.50	34.00				144.50
Salary fund	19,410.97	2,067.50	2,205.10		10,638.69	13,044.88
Supreme court fund	494.51		31.65		100.00	426.16
Special court fund	1,245.71					1,245.71

Quarterly statement of the Territorial treasurer of New Mexico, etc.—Continued.

Title of fund or account.	Balances Sept. 4, 1899.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances Dec. 2, 1899.
Special purposes, fifty-first fiscal year	....	$39.44	....	....	....	$39.44
Charitable institutions, fifty-first fiscal year	....	28.76	....	....	....	28.76
Interest and sinking fund, certificate of indebtedness fifty-first fiscal year	....	78.62	....	....	....	78.62
Territorial purposes, fifty-first fiscal year	....	311.54	....	....	....	311.54
Territorial institutions, fifty-first fiscal year	....	163.12	....	....	....	163.12
Total	$195,326.19	37,521.46	$15,720.74	$15,720.74	$93,461.13	139,386.52

RECAPITULATION.

Balances September 4, 1899	$195,326.19
Receipts during quarter	37,521.46
Total to be accounted for	232,847.65
Disbursements during quarter	93,461.13
Balances December 2, 1899	139,386.52

DISPOSITION OF FUNDS.

First National Bank of Santa Fe	9,749.15
Bank of Commerce, Albuquerque	2,347.75
First National Bank of Las Vegas	28,163.18
First National Bank of Albuquerque	28,142.31
Taos County Bank	10,012.54
New Mexico Savings Bank and Trust Company	1,583.28
San Miguel National Bank, Las Vegas	28,183.00
First National Bank of Raton	14,065.24
First National Bank of Roswell	14,037.27
National Bank of Commerce of New York	3,102.80
Total	139,386.52
Funds not available	1,583.28
Funds available	137,803.24
Deduct interest due January 1, 1900	9,939.79
Free cash balance	127,863.45

Quarterly statement of the Territorial treasurer of New Mexico, first quarter of the fifty-first fiscal year, beginning December 4, 1899, and ending March 3, 1900.

Title of fund or account.	Balances Dec. 4, 1899.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances Mar. 3, 1900.
Miscellaneous fund:						
Forty-second fiscal year	$56.00	....	....	....	....	$56.00
Forty-third fiscal year	37.50	....	....	....	....	37.50
Forty-seventh fiscal year	5.00	....	....	....	....	5.00
Fiftieth fiscal year	8,816.57	....	....	$1,000.00	$2,596.79	5,219.78
Fifty-first fiscal year	....	....	$12,876.34	....	3,794.31	9,082.03
Compensation of assessors' fund:						
Forty-second fiscal year	7.85	....	....	....	....	7.85
Fiftieth and fifty-first fiscal years	1,550.08	$10,249.29	....	....	9,041.35	2,758.02
Deficit fund, forty-second fiscal year	154.60	....	....	....	....	154.60
Deficiency fund, fiftieth fiscal year	2,465.00	....	....	1,500.00	....	965.00
Interest fund	21,972.23	....	44,286.56	....	10,660.00	55,598.79
Interest on deposits	1,946.77	980.40	....	357.25	....	2,569.92
University of New Mexico	442.05	....	9,246.37	....	6,761.54	2,926.88
University of New Mexico, Hadley fund	....	....	924.62	....	....	924.62
Agricultural College	286.98	....	3,729.38	....	2,835.84	1,180.52
New Mexico School of Mines	286.98	....	5,085.50	....	3,762.70	1,609.78
New Mexico Insane Asylum	213.15	....	18,533.84	....	12,877.24	5,869.75
New Mexico Military Institute	1,232.52	....	5,085.50	....	3,808.24	2,509.78
Normal School, New Mexico (Silver City)	286.98	....	5,085.50	....	3,762.70	1,609.78
Normal School, New Mexico (Las Vegas)	56.05	....	6,498.14	....	4,497.25	2,056.94

Quarterly statement of the Territorial treasurer of New Mexico, etc.—Continued.

Title of fund or account.	Balances Dec. 4, 1899.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances Mar. 3, 1900.
Penitentiary current expense fund:						
Fiftieth fiscal year	$9,914.67			$8,018.76	$1,895.91	
Fifty-first fiscal year		$314.50	$14,456.40		9,851.52	$4,919.38
Penitentiary maintenance fund, fifty-first fiscal year			20,200.88		7,658.14	12,542.74
Penitentiary convicts' earnings, fifty-first fiscal year		1,119.68			266.44	853.24
Territorial purposes, forty-seventh fiscal year		327.66		327.66		
Territorial purposes, fiftieth fiscal year		4,134.88		4,134.88		
Territorial purposes, fifty-first fiscal year	311.54	106,219.78	4,462.54	110,993.86		
Sheep sanitary fund	236.30	1,804.76			1,463.02	578.04
Cattle indemnity fund	2,342.83	9,157.20			3,936.24	7,563.79
Capital rebuilding fund	45,426.79				14,688.24	30,738.55
Territorial institutions, forty-seventh fiscal year		95.06		95.06		
Territorial institutions, fiftieth fiscal year		1,087.99		1,087.99		
Territorial institutions, fifty-first fiscal year	163.12	55,152.37	1,190.09	56,505.58		
Territorial institutions, forty-sixth fiscal year		.71		.71		
Territorial institutions, forty-eighth fiscal year		1.85		1.85		
Territorial institutions, forty-ninth fiscal year		4.48		4.48		
Capitol contingent sinking fund	22,406.03	9,161.96				31,567.99
Special tax, fiftieth fiscal year	3,760.86	651.81			329.70	4,082.97
Compilation fund	144.50	8.50				153.00
Salary fund, fiftieth fiscal year	13,044.88	2,116.10			4,997.07	10,163.91
Salary fund, fifty-first fiscal year			26,749.52		4,614.16	22,135.36
Supreme court fund	426.16		443.98			870.14
Special court fund	1,245.71					1,245.71
Special purposes, fifty-first fiscal year	39.44	13,346.29				13,385.73
Charitable institutions, fifty-first fiscal year	28.76	9,793.25			1,479.59	8,342.42
Interest and sinking fund, certificate of indebtedness	78.62	26,689.66	1,500.00		27,198.00	1,070.28
New Mexico deaf and dumb asylum			2,316.73		1,583.89	732.84
Militia fund			998.94		196.45	802.49
Capitol maintenance fund			357.25			357.25
Public school fund		4,904.38				4,904.38
Total	139,386.52	257,322.56	184,028.08	184,028.08	144,556.33	252,152.75

RECAPITULATION.

Balances Dec. 4, 1899	$139,386.52
Receipts during quarter	257,322.56
Total to be accounted for	396,709.08
Disbursements during quarter	144,556.33
Balances Mar. 3, 1900	252,152.75

DISPOSITION OF FUNDS.

First National Bank of Santa Fe	$75,654.61
Bank of Commerce, Albuquerque	27,789.15
First National Bank of Las Vegas	29,869.73
First National Bank of Albuquerque	29,847.40
Taos County Bank	9,982.55
New Mexico Savings Bank and Trust Company	1,583.28
First National Bank of Raton	14,918.33
First National Bank of Roswell	14,782.39
National Bank of Commerce of New York	17,834.55
San Miguel National Bank	29,890.75
Total	252,152.75
Funds not available	1,583.28
Funds available	250,569.47
Deduct interest due	15,468.58
Free cash balance	235,100.89

Quarterly statement of the Territorial treasurer of New Mexico, second quarter of the fifty first fiscal year, commencing March 3, 1900, and ending June 2, 1900.

Title of fund or account.	Balances Mar. 3, 1900.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances June 2, 1900.
Miscellaneous fund:						
Forty-second fiscal year	$56.00					$56.00
Forty-third fiscal year	37.50					37.50
Forty-seventh fiscal year	5.00					5.00
Fiftieth fiscal year	5,219.78			$5,219.78		
Fifty-first fiscal year	9,082.03		$6,390.55		$5,667.19	9,805.39
Compensation of assessors' fund:						
Forty-second fiscal year	7.85					7.85
Fifty-first fiscal year	2,758.02	$662.44			1,936.41	1,484.05
Deficit fund, forty-second fiscal year	154.60					154.60
Deficit fund, fiftieth fiscal year	965.00					965.00
Interest fund, fifty-first fiscal year	55,598.79		4,365.79		25,075.00	34,889.58
Interest on deposits	2,569.92	1,041.76		1,188.46		2,473.22
University of New Mexico	2,926.88		614.69		2,900.00	641.57
University of New Mexico, Hadley fund	924.62		61.47			986.09
Agricultural College	1,180.52		247.92			1,428.44
New Mexico School of Mines	1,609.78		338.07		1,609.78	338.07
New Mexico Insane Asylum	5,869.75		1,232.11		5,869.75	1,232.11
New Mexico Deaf and Dumb Asylum	732.84		154.01		732.84	154.01
New Mexico Military Institute	2,509.78		338.07		2,500.00	347.85
Normal School, New Mexico (Silver City)	1,609.78		338.07		1,609.78	338.07
Normal University, New Mexico (Las Vegas)	2,056.94		431.99		2,056.94	431.99
Pullman Company tax fund		194.99		97.50	32.03	65.46
Legal expense fund		595.55			177.05	418.50
Special tax fund, fiftieth fiscal year	4,082.97	180.26			324.97	3,938.26
Salary fund, fiftieth fiscal year	10,163.91			10,163.91		
Salary fund, fifty-first fiscal year	22,135.36	2,006.35	12,800.89		9,965.86	26,976.74
Compilation fund	153.00	17.00				170.00
Public-school fund	4,904.38	2,629.67				7,534.05
Charitable institutions, fifty-first fiscal year	8,342.42	567.15	4.32		4,362.24	4,551.65
Special court fund	1,245.71				81.63	1,164.08
Capitol rebuilding fund	30,738.55				22,681.58	8,056.97
Special purposes, fifty-first fiscal year	13,385.73	771.73	5.90			14,163.36
Sheep sanitary fund	578.04	140.31				718.35
Cattle indemnity fund	7,563.79	302.00			3,075.10	4,790.69
Capitol contingent sinking fund	31,567.99	580.81	3.93		20,000.00	12,152.73
Interest and sinking fund, certificate of indebtedness	1,070.28	1,546.97	11.79		965.00	1,664.04
Territorial purposes, fiftieth fiscal year		1,002.62		1,002.62		
Territorial purposes, forty-seventh fiscal year		193.21		193.21		
Territorial purposes, fifty-first fiscal year		9,735.25	1,243.01	10,941.82		36.44
Territorial institutions, fiftieth fiscal year		296.99		296.99		
Territorial institutions, fifty-first fiscal year		3,189.73	585.48	3,756.40		18.81
Territorial institutions, forty-eighth fiscal year		69.49		69.49		
Territorial institutions, forty-seventh fiscal year		56.06		56.06		
Territorial institutions, forty-ninth fiscal year		129.37		129.37		
Territorial institutions, forty-sixth fiscal year		3.81		3.81		
Territorial institutions, forty-fifth fiscal year		1.90		1.90		
Territorial institutions, forty-fourth fiscal year		1.30		1.30		
Territorial institutions, forty-third fiscal year		.93		.93		
Territorial institutions, forty-second fiscal year		.71		.71		
Territorial institutions, forty-first fiscal year		.54		.54		

Quarterly statement of the Territorial treasurer of New Mexico, etc.—Continued.

Title of fund or account.	Balances Mar. 3, 1900.	Receipts during quarter.	Transfers to funds.	Transfers from funds.	Payments during quarter.	Balances June 2, 1900.
Penitentiary current expense fund, fifty-first fiscal year	$4,919.38		$634.63		$3,355.88	$2,198.13
Penitentiary maintenance fund, fifty-first fiscal year	12,542.74		1,991.41		11,351.68	3,182.47
Penitentiary convicts' earnings, fifty-first fiscal year	853.24	$1,751.23			1,882.25	722.22
Supreme court fund	870.14		43.77			913.91
Militia fund, fifty-first fiscal year	802.49		98.47		640.53	260.43
Capitol maintenance fund	357.25		1,138.46			1,495.71
Total	252,152.75	27,670.13	33,074.80	$33,074.80	128,853.49	150,969.39

RECAPITULATION.

Balances Mar. 3, 1900	$252,152.75
Receipts during quarter	27,670.13
Total to be accounted for	279,822.88
Payments during quarter	128,853.49
On hand June 2, 1900	150,969.39

DISPOSITION OF FUNDS.

First National Bank of Santa Fe	$10,467.57
Bank of Commerce, Albuquerque	23,928.27
First National Bank of Las Vegas	25,916.47
First National Bank of Albuquerque	25,896.82
Taos County Bank, Taos	8,732.53
New Mexico Savings Bank and Trust Co., Albuquerque	*781.19
First National Bank of Raton	13,031.58
First National Bank of Roswell	12,856.40
National Bank of Commerce of New York	3,398.56
San Miguel National Bank, Las Vegas	25,960.00
Total	150,969.39
* Funds not available	781.19
Funds available	150,188.20

Quarterly report of the auditor of public accounts of the Territory of New Mexico, giving a detailed statement of the receipts and expenditures during the first quarter of the fiftieth fiscal year, ending June 3, 1899.

RECEIPTS.

J. L. Perea, treasurer and collector Bernalillo County	$2,106.16
C. W. Haynes, collector Chaves County	3,070.05
J. A. Gilmore, treasurer and collector Chaves County	1,019.60
A. E. Burnam, treasurer and collector Colfax County	4,688.88
Jacob Schaublin, treasurer and collector Dona Ana County	1,902.34
J. D. Walker, collector Eddy County	2.83
J. F. Matheson, treasurer and collector Eddy County	1,016.36
John L. Burnside, treasurer and collector Grant County	2,308.19
Placido Baca y Baca, collector Guadalupe County	864.26
Salome Martinez, treasurer and collector Guadalupe County	357.04
R. Michaels, treasurer and collector Lincoln County	2,237.97
J. B. Martinez, treasurer and collector Mora County	227.58
W. G. Sargent, treasurer and collector Rio Arriba County	1,706.38
C. H. McHenry, treasurer and collector San Juan County	848.03
Fred Muller, treasurer and collector Santa Fe County	979.62
T. Labadie, collector San Miguel County	5,433.00
Margarito Romero, treasurer and collector San Miguel County	6,005.84
Will M. Robins, treasurer and collector Sierra County	471.73
Abran Abeytia, treasurer and collector Socorro County	858.90
Donaciano Cordova, treasurer and collector Taos County	408.89
Nepomuseno Martinez, treasurer and collector Union County	3,356.43
Solomon Luna, treasurer and collector Valencia County	134.00

Quarterly report of the auditor of public accounts of Territory of New Mexico, etc.—Cont'd.

RECEIPTS—continued.

E. H. Bergmann, superintendent New Mexico penitentiary	$1,250.31
A. M. Bergere, clerk first judicial district	169.95
H. P. Owen, clerk second judicial district	440.80
J. P. Mitchell, clerk third judicial district	212.00
Secundino Romero, clerk fourth judicial district	254.35
John E. Griffith, clerk fifth judicial district	203.85
Pullman Palace Car Company	71.05
George H. Wallace, secretary Territory, corporation fees	617.00
George H. Wallace, secretary Territory, unexpended balance employees thirty-third legislative assembly	80.00
Sale of Compiled Laws, 1897	68.00
Total	43,371.39

ABSTRACT OF RECEIPTS AND EXPENDITURES DURING THE QUARTER.

	Receipts.	Payments.
License fund		$23.76
Penitentiary current expense fund	$1,250.31	11,969.52
Salary fund	1,280.95	2,051.24
Assessors' fund	1,662.89	2,695.39
Special tax fund	3,806.30	12,854.25
Compilation fund (from sale of Compiled Laws)	68.00	102.00
Capitol contingent sinking fund	1,520.32	
Capitol rebuilding fund		9,642.48
Sheep sanitary fund	374.95	
Territorial purposes, forty-seventh fiscal year	553.04	
Territorial institutions, forty-seventh fiscal year	162.19	
Territorial purposes, forty-eighth fiscal year	561.01	352.71
Territorial institutions, forty-eighth fiscal year	163.71	
Territorial purposes, forty-ninth fiscal year	1,994.07	
Territorial institutions, forty-ninth fiscal year	453.19	
Territorial purposes, fiftieth fiscal year	22,857.65	5,988.70
Territorial institutions, fiftieth fiscal year	5,790.16	
Cattle indemnity fund	872.65	
Miscellaneous fund		8,419.34
Transportation of convicts fund		257.81
Supreme court fund		130.52
Territorial institutions fund, viz:		
University of New Mexico		1,750.00
Agricultural College		1,166.18
New Mexico Insane Asylum		4,247.71
New Mexico School of Mines		1,195.88
New Mexico Military Institute		2,100.00
Normal School, Silver City		1,166.18
Normal School, Las Vegas		1,166.18
Total	43,371.39	67,309.85

NOTE.—The following appropriations made by the thirty-third legislative assembly were paid from the following funds, and the amounts are included in the column of expenditures above, to wit:

For Territorial purposes, forty-eighth fiscal year, for printing report of superintendent of public institutions in Spanish, H. J. R. No. 4	$352.71
For Territorial purposes, fiftieth fiscal year, for printing bills, etc., in Spanish, C. B. No. 9	1,199.40
Expenses of commission visiting Territorial institutions, H. J. R. No. 13	125.50
Pay of interpreters, translators, etc., C. J. R. No. 11	3,000.00
Printing reports, etc., in Spanish, H. J. R. No. 4	1,413.80
Pay for muster in and out rolls, C. B. No. 100	250.00
Total	6,341.41

Quarterly report of the auditor of public accounts of the Territory of New Mexico, giving a detailed statement of the receipts and expenditures during the second quarter of the fiftieth fiscal year, ending September 5, 1899.

RECEIPTS.

J. L. Perea, treasurer and collector Bernalillo County	$16,242.86
J. A. Gilmore, treasurer and collector Chaves County	12,168.06
A. E. Burnam, treasurer and collector Colfax County	7,003.13
Jacob Schaublin, treasurer and collector Dona Ana County	9,819.99
J. F. Matheson, treasurer and collector Eddy County	6,870.72
John L. Burnside, treasurer and collector Grant County	20,132.71
Salome Martinez, treasurer and collector Guadalupe County	1,850.09
R. Michaels, treasurer and collector Lincoln County	5,955.20
J. B. Martinez, treasurer and collector Mora County	2,582.17
W. G. Sargent, treasurer and collector Rio Arriba County	2,042.55
C. H. McHenry, treasurer and collector San Juan County	1,373.67
Fred Muller, treasurer and collector Santa Fe County	8,697.64
Margarito Romero, treasurer and collector San Miguel County	9,015.58
William M. Robins, treasurer and collector Sierra County	1,684.88
Abran Abeytia, treasurer and collector Socorro County	8,582.91
Donaciano Cordova, treasurer and collector Taos County	1,376.39
Nepomuseno Martinez, treasurer and collector Union County	8,171.81
Solomon Luna, treasurer and collector Valencia County	3,543.63
J. A. La Rue, secretary cattle sanitary board, fees	2,000.00
George H. Wallace, secretary Territory, corporation fees	1,878.00
W. H. Whiteman, adjutant-general, refund interest fund	8.65
A. M. Bergere, clerk first judicial district, fees	192.85
Harry P. Owen, clerk second judicial district, fees	456.60
J. P. Mitchell, clerk third judicial district, fees	128.80
Secundino Romero, clerk fourth judicial district, fees	522.35
J. E. Griffith, clerk fifth judicial district, fees	325.25
H. O. Bursum, superintendent New Mexico penitentiary	1,664.13
E. H. Bergmann, ex-superintendent New Mexico penitentiary	768.97
Sale of Compiled Laws, 1897	51.00
Sale of capitol rebuilding bonds, second series	60,792.50
Sale of certificates of indebtedness, series "A"	39,475.00
Product of note First National Bank of Santa Fe, to pay interest	11,000.00
Total	246,378.09

ABSTRACT OF RECEIPTS AND EXPENDITURES DURING THE QUARTER.

	Receipts.	Payments.
Penitentiary current expense fund	$2,433.10	$11,415.23
Salary fund	1,625.85	9,676.81
Assessors' fund	5,300.32	3,323.01
Special tax fund	13,452.06	14,900.42
Compilation fund (from sale of Compiled Laws)	51.00	....
Capitol contingent sinking fund	5,330.49	....
Capitol rebuilding fund	60,792.50	12,315.63
Sheep sanitary fund	811.37	1,400.00
Cattle indemnity fund	5,698.28	....
Miscellaneous fund	....	13,103.56
Supreme court fund	....	88.90
Territorial purposes, forty-seventh fiscal year	1,600.76	....
Territorial institutions, forty-seventh fiscal year	468.70	....
Territorial purposes, fiftieth fiscal year	76,349.87	....
Territorial institutions, fiftieth fiscal year	21,980.14	....
Interest on deposits fund	....	134.75
Deficiency fund	....	10.00
Territorial institutions fund, viz:		
University of New Mexico	....	2,731.13
Agricultural College	....	640.90
New Mexico Insane Asylum	....	6,793.64
New Mexico School of Mines	....	640.90
New Mexico Military Institute	....	1,900.00
Normal Institute, Silver City	....	640.90
Normal School, Las Vegas	....	1,811.63
Due First National Bank of Santa Fe	11,000.00	....
Paid by W. H. Whiteman, adjutant-general	8.65	....
Certificates of indebtedness, sale	39,475.00	....
Total	246,378.09	81,527.41

Quarterly report of the auditor of public accounts of the Territory of New Mexico, giving a detailed statement of the receipts and expenditures during the first quarter of the fifty-first fiscal year, ending March 3, 1900.

RECEIPTS.

J. L. Perea, treasurer and collector Bernalillo County	$26,248.69
J. A. Gilmore, treasurer and collector Chaves County	18,864.70
A. E. Burnam, treasurer and collector Colfax County	25,543.85
Jacob Schaublin, treasurer and collector Dona Ana County	20,521.46
J. F. Matheson, treasurer and collector Eddy County	8,066.12
John L. Burnside, treasurer and collector Grant County	32,358.10
Salome Martinez, treasurer and collector Guadalupe County	2,853.70
Henry Lutz, treasurer and collector Lincoln County	8,734.48
J. B. Martinez, treasurer and collector Mora County	7,762.43
D. M. Sutherland, treasurer and collector Otero County	4,374.60
J. H. Sargent, treasurer and collector Rio Arriba County	3,858.40
C. H. McHenry, treasurer and collector San Juan County	2,720.16
Fred Muller, treasurer and collector Santa Fe County	13,577.72
Margarito Romero, treasurer and collector San Miguel County	25,159.86
William M. Robins, treasurer and collector Sierra County	8,417.34
Abran Abeytia, treasurer and collector Socorro County	16,829.22
Donaciano Cordova, treasurer and collector Taos County	2,730.19
Nepomuseno Martinez, treasurer and collector Union County	12,367.80
Solomon Luna, treasurer and collector Valencia County	3,949.18
J. A. La Rue, secretary cattle sanitary board, fees	2,500.00
George H. Wallace, secretary Territory, corporation fees	441.00
A. M. Bergere, clerk first judicial district, fees	319.90
Harry P. Owen, clerk second judicial district, fees	397.25
J. P. Mitchell, clerk third judicial district, fees	547.25
Secundino Romero, clerk fourth judicial district, fees	530.55
J. E. Griffith, clerk fifth judicial district, fees	321.15
H. O. Bursum, superintendent New Mexico penitentiary	1,434.18
Sale of Compiled Laws, 1897	8.50
A. A. Keen, commissioner of public lands	4,904.38
J. H. Vaughn, Territorial treasurer, interest on deposits	980.40
Total	257,322.56

ABSTRACT OF RECEIPTS AND EXPENDITURES DURING THE QUARTER.

	Receipts.	Payments.
Penitentiary current expense fund	$1,434.18	$18,643.39
Salary fund	2,116.10	7,003.77
Assessors' fund	10,249.21	9,114.53
Special tax fund	651.81	329.70
Compilation fund (from sale of Compiled Laws)	8.50	....
Capitol contingent sinking fund	9,161.96	....
Sheep sanitary fund	1,804.78	1,463.02
Cattle indemnity fund	9,157.28	....
Common school income fund	4,904.38	....
Territorial institutions, forty-sixth fiscal year	.71	....
Territorial institutions, forty-seventh fiscal year	95.06	....
Territorial institutions, forty-eighth fiscal year	1.85	....
Territorial institutions, forty-ninth fiscal year	4.47	....
Territorial institutions, fiftieth fiscal year	1,087.99	....
Territorial institutions, fifty-first fiscal year	55,152.37	39,658.47
Territorial purposes, forty-seventh fiscal year	327.66	....
Territorial purposes, fiftieth fiscal year	3,693.87	....
Territorial purposes, fifty-first fiscal year	106,660.78	....
Charitable institutions fund	9,793.25	2,373.44
Interest and sinking fund and certificates of indebtedness	26,564.89	....
Special purposes	13,471.06	....
Miscellaneous fund	....	5,950.96
Supreme court fund	....	245.35
Capitol rebuilding fund	....	14,585.39
Militia fund	....	196.44
Interest on deposits fund	980.40	....
Total	257,322.56	99,565.46

Quarterly report of the auditor of public accounts of the Territory of New Mexico, giving a detailed statement of the receipts and expenditures during the second quarter of the fifty-first fiscal year, ending June 2, 1900.

RECEIPTS.

J. L. Perea, treasurer and collector Bernalillo County	$3,517.28
J. A. Gilmore, treasurer and collector Chaves County	657.97
A. E. Burnam, treasurer and collector Colfax County	840.72
Jacob Schaublin, treasurer and collector Doña Ana County	709.59
J. F. Matheson, treasurer and collector Eddy County	889.21
John L. Burnside, treasurer and collector Grant County	1,315.19
Salome Martinez, treasurer and collector Guadalupe County	448.90
Henry Lutz, treasurer and collector Lincoln County	398.00
J. B. Martinez, treasurer and collector Mora County	360.54
D. M. Sutherland, treasurer and collector Otero County	251.62
J. H. Sargent, treasurer and collector Rio Arriba County	108.35
C. H. McHenry, treasurer and collector San Juan County	527.26
Fred Muller, treasurer and collector Santa Fe County	242.77
Margarito Romero, treasurer and collector San Miguel County	1,207.44
William M. Robins, treasurer and collector Sierra County	1,430.53
Abran Abeytia, treasurer and collector Socorro County	521.64
Donaciano Cordova, treasurer and collector Taos County	366.10
Nepomuseno Martinez, treasurer and collector Union County	826.66
Solomon Luna, treasurer and collector Valencia County	1,260.56
George H. Wallace, secretary Territory, corporation fees	3,553.25
A. M. Bergere, clerk first judicial district, fees	307.20
Harry P. Owen, clerk second judicial district, fees	665.10
J. P. Mitchell, clerk third judicial district, fees	476.95
Secundino Romero, clerk fourth judicial district, fees	293.75
J. E. Griffith, clerk fifth judicial district, fees	263.35
F. W. Clancy, legal-expense fund	595.55
Pullman tax fund	194.99
H. O. Bursum, superintendent New Mexico penitentiary	1,751.23
Sales of Compiled Laws, 1897	17.00
A. A. Keen, commissioner of public land	2,629.67
J. H. Vaughn, Territorial treasurer, interest on deposits	1,041.76
Total	27,670.13

ABSTRACT OF RECEIPTS AND EXPENDITURES DURING THE QUARTER.

	Receipts.	Payments.
Penitentiary current expense fund	$1,751.23	$16,589.81
Salary fund	5,559.60	9,757.53
Assessors' fund	662.50	2,144.64
Special tax fund	180.26	324.97
Compilation fund (from sale of Compiled Laws)	17.00	
Capitol contingent sinking fund	578.81	
Sheep sanitary fund	140.31	
Cattle indemnity fund	302.00	
Common school income fund	2,629.67	
Territorial institutions, forty-first fiscal year	.54	
Territorial institutions, forty-second fiscal year	1.99	
Territorial institutions, forty-third fiscal year	.93	
Territorial institutions, forty-fourth fiscal year	1.30	
Territorial institutions, forty-fifth fiscal year	1.90	
Territorial institutions, forty-sixth fiscal year	3.81	
Territorial institutions, forty-seventh fiscal year	56.06	
Territorial institutions, forty-eighth fiscal year	69.49	
Territorial institutions, forty-ninth fiscal year	129.37	
Territorial institutions, fiftieth fiscal year	296.89	
Territorial institutions, fifty-first fiscal year	3,189.69	17,279.09
F. W. Clancy, legal expense fund	595.55	177.05
Pullman tax fund	194.99	32.05
Territorial purposes, forty-seventh fiscal year	193.21	
Territorial purposes, fiftieth fiscal year	1,003.32	
Territorial purposes, fifty-first fiscal year	6,182.00	
Charitable institutions fund	567.15	3,468.39
Interest and sinking fund and certificates of indebtedness	1,506.75	
Special purposes	812.05	
Miscellaneous fund		5,389.65
Supreme court fund		56.00
Capitol rebuilding fund		22,588.49
Militia fund		640.53
Interest on deposit fund	1,041.76	
Total	27,670.13	78,448.18

FINANCIAL STATEMENT OF BERNALILLO COUNTY.

Total bonded indebtedness of the county of Bernalillo up to and including June 30, 1900, amounts to $377,185.11, composed of the following items:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
Jan. 1, 1885	10–20	Funding bonds	6	$22,500.00
Jan. 1, 1886	10–30	Court-house building	7	78,000.00
July 1, 1889	10–30	Funding bonds	6	43,700.00
Do	10–30	Current expenses	6	40,000.00
Nov. 16, 1891	20–30	.....do	6	7,000.00
July 1, 1892	20–30	Bridge building	5.9	30,000.00
Jan. 1 ,1893	15–30	Current expenses	6	17,000.00
July 1, 1895	10–30	Funding bonds	6	64,900.00
Aug. 2, 1897	10–20	.....do	6	50,100.00
Total bonded indebtedness				353,200.00
Approved accounts unpaid to June 30, 1900				23,985.11
Total indebtedness to June 30, 1900				377,185.11
Total assessed value of real and personal property for the year 1900				4,880,367.00

FINANCIAL STATEMENT OF CHAVES COUNTY.

Total indebtedness of said county up to and including June 30, 1900, amounts to $50,000, composed of the following items:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
Jan. 1, 1891	10–20	Court-house and jail	6	$30,000.00
Do	10–20	Lincoln County indebtedness	6	13,000.00
Do	15–30	Current expenses	6	7,000.00
Total bonded debt				50,000.00
Total assessed valuation, real and personal property, for the year ending June 30, 1900				2,305,086.00

FINANCIAL STATEMENT OF COLFAX COUNTY.

Total indebtedness of said county up to and including June 30, 1900, amounts to $70,400, composed of the following items:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
July 1, 1897	10–30	Current expenses	6	$7,000.00
Do	20–30	Funding debt	6	28,900.00
Aug. 1, 1897	20–30	.....do	6	18,500.00
July 1, 1898	20–30	Improvement bonds	6	16,000.00
Total bonded debt				70,400.00
Total assessed value, real and personal property for year ending June 30, 1900				2,913,000.00

FINANCIAL STATEMENT OF DONA ANA COUNTY.

Total indebtedness of said county up to and including June 30, 1900, amounts to $94,688.33, composed of the following amounts:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
Jan. 1, 1895	10–20	Funding bonds	6	$5,700.00
July 1, 1899	10–30	.....do	6	32,000.00
July 1, 1895	10–30	.....do	6	23,100.00
Aug. 2, 1897	10–20	.....do	6	7,621.15
July 1, 1889	10–30	Current expense bonds	6	15,000.00
July 1, 1891	15–30	.....do	6	7,000.00
Total bonded debt				90,421.15
Judgments against the county				3,524.40
Approved accounts				589.92
Warrants outstanding				152.86
Total indebtedness				94,688.33
Total assessed value real and personal property for year ending June 30, 1900				2,416,700.00
Void indebtedness under section 302, compiled laws, 1897				11,393.08

FINANCIAL STATEMENT OF EDDY COUNTY.

Total indebtedness of said county up to and including June 30, 1900, amounts to $74,079.39, composed of the following amounts:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
			Per cent.	
Nov. 30, 1891	Feb. 6, 1921	County current expenses	6	$7,000.00
July 1, 1891	July 1, 1911	Court-house and jail	6	30,000.00
Jan. 1, 1892	Jan. 1, 1912	Lincoln County indebtedness	6	10,000.00
June 2, 1894	Jan. 6, 1924	Bridge bonds (county)	6	3,000.00
		Floating indebtedness bonds under act thirty-second legislative assembly.	6	24,079.39
Total bonded debt				74,079.39
Total assessed valuation of real and personal property for year ending June 30, 1900				1,285,935.00

FINANCIAL STATEMENT OF GRANT COUNTY.

Total indebtedness of said county up to and including June 30, 1900, amounts to $236,988.55, composed of the following amounts:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
			Per cent.	
July 1, 1883	June 30, 1903	Railroad	6	$57,000.00
July 1, 1885	June 30, 1905	Funding indebtedness	7	18,500.00
July 1, 1889	July 1, 1919	.....do	6	115,500.00
Do	.....do	Current expenses	6	27,000.00
Total bonded debt				218,000.00
Approved accounts outstanding				2,100.00
Warrants outstanding				65.87
Judgments against county				8,064.68
Coupon indebtedness				8,758.00
Total indebtedness				236,988.55
Total assessed valuation real and personal for year ending June 30, 1900				3,668,613.00

FINANCIAL STATEMENT OF GUADALUPE COUNTY.

Total indebtedness of said county up to and including June 30, 1900, amounts to $29,847.91, composed of the following amounts:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
Jan. 1, 1893	20-30	Court-house and jail	6	$25,000.00
Aug. 2, 1897	10-20	Funding indebtedness of current expenses.	6	2,735.46
Total bonded indebtedness				27,735.46
Judgments against the county				512.19
Approved accounts outstanding for 1898				652.33
Approved accounts outstanding for 1899				592.11
Approved accounts outstanding for 1900				355.82
Total indebtedness				29,847.91
Total assessed value real and personal property for year ending June 30, 1900				647,897.00

FINANCIAL STATEMENT OF LINCOLN COUNTY.

Total indebtedness of said county up to and including June 30, 1900, amounts to $48,775, composed of the following amounts:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
Oct. 3, 1882	20	Funded indebtedness	8	$3,000.00
Jan. 1, 1883	20	do	8	500.00
June 2, 1883	20	do	8	300.00
Apr. 7, 1885	30	do	6	2,600.00
July 1, 1889	15	do	6	24,300.00
July 1, 1894	20-30	Current expenses	6	7,000.00
Aug. 2, 1897	20-30	Funded indebtedness	6	11,075.00
Total indebtedness				48,775.00
Total assessed valuation real and personal property for year ending June 30, 1900 No floating indebtedness.				1,236,739.00

FINANCIAL STATEMENT OF MORA COUNTY.

Total indebtedness of said county up to and including June 30, 1900, amounts to $103,570.46, composed of the following amounts:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
Aug. 1, 1889	10-20	Court-house and jail	6	$70,000.00
Interest due and unpaid on bonds				17,339.25
Floating indebtedness				7,982.99
Judgments against county				6,460.57
Current expenses				1,787.65
Total indebtedness				103,570.46
Total assessed value real and personal property for year ending June 30, 1900				1,067,173.00

M'KINLEY COUNTY.

McKinley County was formed from a portion of the county of Bernalillo by an act of the thirty-third legislative assembly of the Territory of New Mexico, passed February 23, 1899.

The only indebtedness against the county at the date of June 30, 1899, was its portion or pro rata of the indebtedness of that (Bernalillo) county, and it is impossible to determine what the pro rata of indebtedness will be until the assessment of this county has been completed.

This county of McKinley will be organized in 1900.

OTERO COUNTY.

Otero County was formed from portions of Dona Ana, Socorro, and Lincoln counties by an act of the thirty-third legislative assembly of the Territory of New Mexico, which went into effect February 1, 1899.

The only indebtedness against the county at date of June 30, 1899, was its portion or pro rata of the indebtedness of those counties, and it is impossible to determine what the pro rata of indebtedness will be until the assessment of this county has been completed.

FINANCIAL STATEMENT OF RIO ARRIBA COUNTY.

Total indebtedness of said county up to and including June 30, 1900, amounts to $51,902.60, composed of the following amounts:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
July 5, 1882	20-30	Funding bonds, current expenses of court-house, jail, and bridges	6	$45,749.00
Total bonded indebtedness				45,749.00
Approved accounts outstanding				5,015.80
Warrants outstanding				1,137.80
Total indebtedness to June 30, 1900				51,902.60
Total assessed value of real and personal property for year ending June 30, 1900				956,196.00

FINANCIAL STATEMENT OF SAN JUAN COUNTY.

Total indebtedness of said county up to and including June 30, 1900, amounts to $21,290.16, composed of the following amounts:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
Dec. 30, 1889	Dec. 30, 1919	Current expense	6	$8,000.00
Sept. 1, 1892	Sept. 1, 1922	Jail bonds	6	2,500.00
Jan. 1, 1893	Jan. 1, 1923	Current expense	6	4,000.00
Oct. 1, 1892	Oct. 1, 1922	Judgment	6	2,600.00
Apr. 1, 1894	Apr. 1, 1923	Current expense	6	3,000.00
Total bonded debt				20,100.00
Warrants outstanding				180.05
Floating indebtedness				1,010.11
Total indebtedness				21,290.16
Total assessed valuation real and personal property for year ending June 30, 1900				516,953.00

FINANCIAL STATEMENT OF SAN MIGUEL COUNTY.

Total indebtedness of San Miguel County up to and including June 30, 1900, amounts to $496,886, composed of the following amounts:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
July 1, 1882	10	Refunding	8	$3,300.00
July 1, 1884	10	Court-house and jail	6	26,500.00
July 1, 1889	10–30	Funding debt	6	213,300.00
Jan. 1, 1892	30	Court-house and jail bonds	6	18,000.00
Nov. 1, 1895	20–30	Funded debt	5½	113,300.00
July 1, 1897	10–20	.....do	6	13,879.00
Total bonded indebtedness				388,279.00
Approved accounts outstanding, including floating debt				10,000.00
Judgments against county				23,107.00
Past due interest unpaid				75,500.00
Total indebtedness				496,886.00
Total assessed value real and personal property for year ending June 30, 1900				3,556,301.00

FINANCIAL STATEMENT OF SANTA FE COUNTY.

Total indebtedness of the said county up to and including June 30, 1900, amounts to $874,256.42, composed of the following amounts:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
July 1, 1882	10–20	Current expense	8	$14,600.00
Jan. 1, 1895	20–30	.....do	6	27,000.00
Jan. 10, 1890	20–30	.....do	6	6,300.00
Sept. 29, 1891	20–30	Railroad bonds	5	262,000.00
Aug. 21, 1891	20–30	Current expense	5	19,500.00
Mar. 1, 1892	20–30	Railroad bonds	5	178,600.00
Do	20–30	Court-house and jail	5	64,500.00
Do	20–30	Current expense	5	90,900.00
Jan. 1, 1893	20–30	.....do	5	3,500.00
Aug. 1, 1897	10–20	.....do	6	13,139.00
Total bonded indebtedness				680,039.00
Outstanding warrants				2,790.00
Accounts filed and approved and certificates issued				2,850.00
Accounts due and approved				421.00
Past due interest unpaid				188,156.42
Total indebtedness				874,256.42
Total assessed value real and personal property for year ending June 30, 1900				1,886,940.00

FINANCIAL STATEMENT OF SIERRA COUNTY.

Total indebtedness of the said county up to and including June 30, 1900, amounts to $68,623, composed of the following amounts:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
July 1, 1889	15–30	Funding bonds	6	$56,800.00
Do	15–30	Current expense	6	10,000.00
Total bonded indebtedness				66,800.00
Approved accounts unpaid to June 30, 1900				1,823.00
Total indebtedness to June 30, 1900				68,623.00
Total assessed value real and personal property for year ending June 30, 1900				1,355,170.00

FINANCIAL STATEMENT OF SOCORRO COUNTY.

Total indebtedness of the said county up to and including June 30, 1900, amounts to $180,355.66, composed of the following amounts:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
Jan. 1, 1884	10–20	Court-house and jail funding debt	6	$103,500.00
July 1, 1889	10–20	Bridges and improvements	6	54,700.00
July 1, 1897	10–20	Funding bonds	6	20,700.00
Total bonded indebtedness				178,900.00
Approved accounts outstanding				1,455.66
Total indebtedness to June 30, 1900				180,355.66
Total assessed value real and personal property for 1900				4,501,588.00

FINANCIAL STATEMENT OF TAOS COUNTY.

Total indebtedness of the said county up to and including June 30, 1900, amounts to $44,900, composed of the following amounts:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
June 6, 1889	10–30	Funding bonds	6	$24,500.00
July 2, 1889	10–30	Current expense	6	3,000.00
July 1, 1892	15–30	.....do	6	3,500.00
Aug. 2, 1897	10–20	Funding bonds	6	10,400.00
Total bonded indebtedness				41,400.00
Approved accounts outstanding to June 30, 1899				3,500.00
Total indebtedness to June 30, 1900				44,900.00
Total assessed value real and personal property for year ending June 30, 1900				790,578.42

FINANCIAL STATEMENT OF UNION COUNTY.

Total indebtedness of the said county up to and including June 30, 1900, amounts to $42,293.31, composed of the following amounts:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
Nov. 21, 1894	10–20	Court-house and jail	6	$20,000.00
Jan. 15, 1895	15–30	Current expenses	6	7,000.00
Mar. 1, 1900	10–20	Refunding bonds	6	10,000.00
Outstanding indebtedness				5,293.31
Total indebtedness				42,293.31
Total assessed value real and personal property for year ending June 30, 1900				1,817,835.00

FINANCIAL STATEMENT OF VALENCIA COUNTY.

Total indebtedness of the said county up to and including June 30, 1900, amounts to $106,982, composed of the following amounts:

Bonded debt.

Date of issue.	Date of maturity.	For what purpose issued.	Rate of interest.	Amount.
	Years.		*Per cent.*	
Jan. 1, 1882	10–20	Floating debt	8	$18,982.00
Jan. 1, 1885	10–20	.....do	6	3,800.00
Jan. 1, 1889	10–20	.....do	6	18,700.00
Aug. 1, 1889	10–20	Current expenses	6	30,000.00
Jan. 1, 1891	10–20	.....do	6	7,000.00
Jan. 1, 1895	10–20	Floating debt	6	20,000.00
Jan. 1, 1897	10–20	.....do	6	8,500.00
Total bonded indebtedness				106,982.00
Total assessed value real and personal property for year ending June 30, 1900				1,996,457.88

RECAPITULATION.

County.	Assessed value.	Indebtedness.
Bernalillo	$4,880,367.00	$377,185.11
Chaves	2,805,086.00	50,000.00
Colfax	2,913,000.00	70,400.00
Dona Ana	2,416,700.00	94,688.33
Eddy	1,285,935.00	74,079.39
Grant	3,668,613.00	236,988.55
Guadalupe	647,897.00	29,847.91
Lincoln	1,236,739.00	48,775.00
Mora	1,067,173.00	103,570.46
McKinley		
Otero	652,652.00	
Rio Arriba	956,196.00	51,902.60
San Juan	516,953.00	21,290.16
San Miguel	3,556,301.00	496,886.00
Santa Fe	1,886,940.00	874,256.42
Sierra	1,355,170.00	68,623.00
Socorro	4,501,588.00	180,355.66
Taos	790,578.42	44,900.00
Union	1,817,835.00	42,293.31
Valencia	1,996,457.88	106,982.00
Total	38,452,181.30	2,973,023.90

NOTE.—McKinley and Otero counties were created by the last legislature, and are included in the counties from which they were formed in the assessment and debt of 1899 and until June 30, 1900. Otero County gives assessment but not debt.

BANKS.

The statements of the different banks throughout the Territory of New Mexico show the following business for the fiscal year ending June 30, 1900:

Name of bank and location.	Resources.	Liabilities.
First National Bank, Albuquerque	$2,322,210.89	$2,322,210.89
First National Bank, Las Vegas	746,564.71	746,564.71
First National Bank, Santa Fe	578,437.88	578,437.88
First National Bank, Roswell	415,691.23	415,691.23
First National Bank, Raton	290,526.43	290,526.43
First National Bank, Carlsbad	153,558.13	153,558.13
First National Bank, Alamogordo	127,101.88	127,101.88
San Miguel National Bank, Las Vegas	738,557.97	738,557.97
Silver City National Bank, Silver City	432,820.76	432,820.76
Bank of Commerce, Albuquerque	603,437.33	603,437.33
The Bank of Deming, Deming	308,234.39	308,234.39
Sierra County Bank, Hillsboro	156,063.28	156,063.28
Exchange Bank of White Oaks, White Oaks	134,042.82	134,042.82
The Las Vegas Savings Bank, Las Vegas	115,159.35	115,159.85
Taos County Bank, Taos	94,537.28	94,587.28
Geo. D. Bowman & Son, Las Cruces	76,976.43	76,976.43
S. T. Bitting's Bank, Carlsbad	76,187.83	76,187.83
Andrew Morton & Co., Springer	56,149.60	56,149.60
	7,426,258.19	7,426,258.19

UNITED STATES INTERNAL REVENUE,
COLLECTOR'S OFFICE, DISTRICT OF NEW MEXICO,
Santa Fe, N. Mex., September 8, 1900.

DEAR SIR: In response to your request dated September 7, please find herewith appended schedule showing the business of my office for the Territory of New Mexico during the fiscal year ended June 30, 1900:

Collections for New Mexico.

Special-tax stamps	$23,019.69
Tax-paid spirit stamps	74.25
Documentary stamps	25,726.99
Proprietary stamps	1,894.62
Collections on lists	3,982.12
Cigars and cigarettes	2,524.14
Tobacco	120.36
Beer	7,438.90
Total	64,781.07

Very respectfully,

A. L. MORRISON,
Collector Internal Revenue.

Hon. M. A. OTERO,
Governor of New Mexico, Santa Fe, N. Mex.

SOLICITOR-GENERAL.

SANTA FE, *May 9, 1900.*

SIR: In response to your request of the 8th instant for a report of my office during the past year to use in your report to the Interior Department, I beg leave to submit:

My last report was made on the 27th day of December, 1898. All the recommendations which were contained in that report were adopted by the legislature and enacted into laws.

Since that time I have rendered 84 official opinions to different Territorial officers, at their request. I prepared forms of refunding bonds for the Territory, counties, cities, towns, school districts, and boards of education, and approved the form of bonds for several counties and municipalities.

In May, 1899, as required by chapter 59, session laws of 1899, I acted with the treasurer and auditor in passing upon and approving deficiency claims to the amount of about $125,000, and prepared the form of certificates to be issued for the same.

At the request of the commerce commission, I brought a criminal suit against B. G. Wilson, the manager of the Continental Oil Company, for violation of section 2, chapter 50, session laws of 1899. He was arrested, and applied for a writ of habeas corpus to the supreme court, where I appeared. After argument the court rendered a judgment discharging the prisoner, on the ground that said section 2 was in violation of the commerce clause of the Constitution of the United States, not passing upon any of the other sections of the act.

I brought two suits against former incumbents of the office of coal-oil inspector and their bondsmen in the district court, which suits are now pending on demurrer and undisposed of.

I gave consent in three instances to use the name of my office in quo warranto proceedings, after having examined the information carefully and considering the cases to be such as required the issuance of such writs.

I approved the tax levied for Territorial purposes for the fifty-second fiscal year, submitted to me by the auditor.

In July of last year I brought mandamus proceedings in the district court against Samuel Eldodt, on the application of J. H. Vaughn, to obtain possession of the treasurer's office. The district court awarded a peremptory writ. From this judgment Eldoldt took an appeal to the supreme court, where the judgment of the court below was affirmed at the last term.

Before the passage of the act of Congress giving the city of Santa Fe 4 square leagues of land, I had applied to the surveyor-general, under the act of Congress providing for applications under the small holdings act, for title to all lands held and occupied by the Territory for penitentiary, capitol, deaf and dumb institute, and

HEAD WATERS OF THE PECOS.

other buildings, but since the passage of the act of Congress giving the 4 square leagues of land to the city of Santa Fe I do not consider it necessary to proceed further under the small holdings act.

Since the date of my last report I have appeared for the auditor in the district court in three suits brought against him by mandamus, also in the district court upon a statement of facts, made argument, and submitted to the court a question on the construction of the law in regard to fidelity and guaranty insurance companies paying a license fee as insurance companies.

In the district court of Colfax County there is a suit pending against the secretary of the Territorial board of equalization, on writ of certiorari, on the appeal of the plaintiff from the decision of the board of county commissioners in regard to his taxes.

At the last January term of the supreme court I prepared briefs in 12 cases, argued and submitted the same, as follows: Two mandamus, both decided in favor of the Territory; 5 for murder, of which 3 have been affirmed in favor of the Territory, 1 reversed and remanded for a new trial, and 1 is still undisposed of; 4 cases for larceny of animals, of which 3 were affirmed in favor of the Territory and 1 is undisposed of, and 1 case for rape, which has been submitted but is not yet determined.

I also filed informations in the nature of a quo warranto against the Colorado Fuel and Iron Company and the Colorado Supply Company, for them to show cause why they did business in the Territory without complying with its laws in regard to foreign corporations. After the issuance of the writs these companies came in, complied with the law, and the two cases were dismissed, upon their payment of costs.

I presented a rule to the supreme court, which was adopted, providing for the clerks of the district courts, upon the determination of any criminal case in which an appeal had been allowed, to at once notify the solicitor-general of the fact and transmit to the clerk of the supreme court a transcript of the record proper, in order that these criminal appeals might be brought to the attention of the court in a timely way, and avoid the habit of the appellant of delaying until the last minute before sending a transcript, which frequently is not filed until after the sitting of the court, when it is occupied with other business and the solicitor-general is extremely busy in the court with cases already before it.

In addition to this I have written a large number of official letters and communications, which were not considered as official opinions, but contained advice and suggestions to interested persons in regard to the conduct of public affairs, a number of these being upon the subject of honoring requisitions from other States and Territories and from the Republic of Mexico, and granting like papers for the extradition of criminals wanted here.

Very respectfully, your obedient servant,

EDWARD L. BARTLETT,
Solicitor-General.

Hon. MIGUEL A. OTERO,
Governor of New Mexico, Santa Fe, N. Mex.

THE NATIONAL GUARD.

TERRITORY OF NEW MEXICO,
OFFICE OF THE ADJUTANT-GENERAL,
Santa Fe, N. Mex., June 30, 1900.

SIR: I have the honor to make report of the condition of the National Guard of New Mexico on the 30th day of June, 1900. The National Guard on this day is composed of five companies of infantry belonging to the First Regiment, two troops of cavalry belonging to the First Squadron, and a Gatling-gun squad. The headquarters of the First Regiment of infantry is at Albuquerque, and the companies are stationed as follows, viz: Company A at Las Cruces, Company B at Mesilla, Company F at Santa Fe, Company G at Albuquerque, and Company I at Las Vegas.

The headquarters of the First Squadron of cavalry are at Santa Fe, and Troop A is stationed at Hillsboro and Troop E at Santa Fe. The Gatling-gun squad is stationed at Santa Fe. The aggregate strength of the National Guard is 450 officers and men, of which the number of officers and men uniformed is 404. Troop A of the First Squadron of cavalry have not been furnished with uniforms, owing to the insufficiency of the appropriation.

Applications are on file for the organization of cavalry troops at Alamogordo and Roswell, and an effort is being made to organize additional infantry companies at Albuquerque and Las Vegas, which will be authorized if our allotment of the new Congressional appropriation is sufficient to justify the expense.

The guard of the Territory, though not large in number, is in good condition, and officers and men manifest considerable zeal and interest in the work. The condition of the guard has greatly improved in efficiency since my report of last year. More attention has been paid to drill, and the good effect is shown in the improved soldierly appearance of the men. The arms and uniforms are better cared for, and pride in their personal appearance is now a marked characteristic in officers and men.

Upon the occasion of the dedication of the new capitol, June 4, 1900, we were able to mobilize seven uniformed organizations of the National Guard in the city of Santa Fe. Their appearance on parade was excellent, their tactical movements skillful, their arms and accouterments and uniforms in good condition, and their bearing soldierly. So well did they appear and bear themselves as to evoke from spectators many compliments, and it gave to the officers who have had charge of the work a feeling of pride that they had been able to accomplish so much with so little encouragement from the Territory. The appropriation by the Territory for the support of the National Guard, for all purposes, including the salary of adjutant-general, rent of armories, transportation of arms, uniforms, and equipment, fuel, lights, stationery, traveling expenses, etc., is but $2,000 per annum. A reference to what other States are doing for the National Guard is not out of place here. For instance, the strength of the National Guard of New York is 14,230, or thirty-two times greater than our own; the annual appropriation of that State for the support of the guard is $477,000, or nearly two hundred and forty times greater than that of New Mexico. The strength of the National Guard of Pennsylvania is 10,036, twenty-three times greater than our own; its annual appropriation for the support of the guard, $350,000, is one hundred and seventy-five times greater than that of New Mexico. But let us take, for example, our neighboring State of Colorado; the strength of its National Guard is 1,142, or two and one-half times greater than New Mexico; its annual appropriation for the support of the guard is $30,000, which is fifteen times greater than that of New Mexico. I do not argue for a large appropriation for the support of our guard, but the facts show that the Territory has done but little, and appropriations in the future should be more commensurate with the importance of the subiect, or the National Guard of New Mexico should be disbanded. Outside of the matter of arms and uniforms, which are furnished by the Government, the support of the guard has mainly fallen upon the officers and men, and they, seeing what ample provision is made for the guard in other States, become discouraged and dissatisfied. The conduct of members of our guard who have served in United States volunteer regiments has reflected great credit and honor upon the Territory. They have shown the utility of their training, and that they are not behind the volunteer soldiers of other States in the value of their service to the country.

The lamented Capt. Max Luna received his military training in the National Guard of New Mexico; so did Captains Muller and Llewellyn and Lieutenants Griffin, Coleman, Green, Kelley, and others of the Rough Riders, and Captains Borrodaile, Strover, and Reid, and Lieutenants Chamberlin, McRae, Otero, and others of the First Territorial United States Infantry. They did their part faithfully and well, and their gallant conduct appeals to the Territory to do its part in preparing the present guard of the Territory for the time when they too may be called to battle for the honor and safety of their country.

The allotment to the Territory of the Congressional appropriation for several years has been about $2,240. That appropriation has been increased by Congress from $400,000 to $1,000,000. Our allotment in the future will probably be about $6,000. This will enable us to increase the strength of our guard, and to arm and equip the men in better shape than ever before. The Congressional allotment can only be used in the purchase from the Government of uniforms, arms, and equipment. No part of it can be used in paying the contingent expenses of the guard. The increased strength of the guard and larger armament and equipment will naturally demand from the Territory larger appropriations in order to distribute and care for the same.

I take from the report of the adjutant-general of the State of Ohio for the year 1897 a statement of the salaries paid by that State to the adjutant-general and his assistants: Salary of adjutant-general, $2,000 per annum; assistant adjutant-general, $1,500; chief clerk, $1,400; superintendent of arsenal, $1,400; salary of five clerks, $6,000; salary of stenographer, $600; contingent expenses, $2,000. In addition to that the quartermaster-general, the commissary-general, the inspector-general, and surgeon-general also receive salaries. In New Mexico the adjutant-general performs also the duties of quartermaster, commissary, and inspector-general and chief of ordnance, he is not allowed an assistant or clerk, and his salary is $600 per annum. No comment on these figures is necessary.

ARMAMENT.

The armament of the National Guard consists of 1 Gatling gun, caliber .45, model of 1884, and is an excellent piece of ordnance; 400 Springfield rifles, caliber .45; 134 Springfield carbines, caliber .45; 33 Colt's revolvers, caliber .45, and 67 cavalry sabers. Application has been made to the Chief of Ordnance, United States Army, to exchange all of the Springfield rifles and carbines for a like number of Krag-Jörgensens, and it is hoped that before the close of this year our guard will be fully equipped with the more modern and better arm.

OFFICIAL ROSTER.

Governor and commander in chief, Miguel A. Otero; adjutant-general and ex officio quartermaster-general, commissary-general, inspector-general, chief of ordnance, and chief of staff, W. H. Whiteman. Aides-de-camp, acting judge-advocate-general, Col. R. E. Twitchell; acting surgeon-general, Col. W. R. Tipton, Col. E. Godwin-Austen, Col. Harry Whigham, Col. E. W. Dobson, Col. H. A. Alexander, Col. J. E. Hurley, Col. Venceslado Jaramillo, Maj. J. G. Meadors, Maj. R. S. Goss.

First Regiment of Infantry: Col. John Borrodaile, commanding; Lieut. Col. R. C. Rankin; Maj. Eugene Van Patten, Third Battalion; major First Battalion, vacant; major Second Battalion, vacant; Maj. Surg. John F. Pearce; chaplain, Capt. Fred J. Bennett; adjutant, First Lieut. E. L. Medler; quartermaster, First Lieut. F. H. Strong; battalion adjutant, First Lieut. B. F. Forsythe, First Battalion; battalion quartermaster, First Lieut. H. W. Kelley; assistant surgeon, Capt. H. M. Smith; chaplain, Capt. George Selby; battalion adjutant, First Lieut. John Francis Findlay, Third Battalion; battalion quartermaster, First Lieut. William Ascarate; assistant surgeon, Capt. John McConnell; chaplain, Capt. Pedro Lassaign.

Company A: Capt. Oscar Lohman; First Lieut. W. Chetham Strode; Second Lieut. W. F. Jacoby.

Company B: Capt. Allen C. Tyson; First Lieut. Louis Goodman; Second Lieut. Francisco Rivera.

Company F: Capt. Jasper N. Ortiz; First Lieut. John Shoemaker; Second Lieut. James B. Read.

Company G: Capt. L. H. Chamberlin; First Lieut. J. E. Elder; Second Lieut. Charles Whiting.

Company I: Capt. J. P. S. Mennet; First Lieut. Herman Ilfeld; Second Lieut. Bonifacio Lucero.

First Squadron Cavalry: Maj. Frederick Muller, commanding; Maj. Surg. J. H. Sloan; adjutant quartermaster, vacant.

Troop A: Capt. W. S. Hopewell; First Lieut. J. S. McPherson; Second Lieut. Peter Crumrine.

Troop E: Capt. William E. Griffin; first lieutenant, vacant; Second Lieut. Arthur Griffin.

Gatling-gun squad: First Lieut. W. H. Pope, commanding.

In the year just closed I placed lockers for each man in the armories of Troop E and the Gatling-gun squad stationed at Santa Fe for the better preservation and care of arms and uniforms, in which each man can keep his entire equipment, and it has been found to be a great aid in keeping arms and uniforms together and in keeping the same in order. Company G, at Albuquerque, is also provided with lockers, and it is hoped that during the coming year they can be placed in every armory in the Territory.

Pursuant to section 31, chapter 50, Laws of New Mexico, 1897, which requires an annual inspection to be made of the discipline, courses of study, and general management of all military schools within the Territory, I proceeded on the 10th day of May, 1900, to inspect the New Mexico Military Institute, located at Roswell. The inspection was as thorough and comprehensive as could be made, and the impression made upon me by everything I saw was much better than the year before. The school being one year older, everything about it seemed more mature; grass, trees, and shrubbery have filled up the barren places, and the campus, which three years ago was a barren mesa, is fast becoming a place of beauty. The cadets have grown in height, have filled out, are well set up, their uniforms in good condition, and their bearing and conduct soldierly. They gave an exhibition drill which was very creditable to the boys, and especially so to their instructor in military tactics, Major Wilson. I inspected the cadets, their uniforms, arms, and accouterments, and the place where they are kept, and found all in good condition. The arms used at the institute, 80 Springfield rifles, loaned to the school two years ago by order of Governor Otero, are too heavy for the younger class of cadets, and provision should be made to provide the institute with arms more suitable to their years and strength.

This school is more strictly a Territorial institution than any other school in the Territory; students are there from every county, and the scramble that occurs every year in each county to obtain the appointment speaks well for the reputation and excellent character of the school. I took occasion to inquire of many of the boys how they were treated, whether they were satisfied with their instructors, and if they would return next year, and received the same reply from all—that they were entirely satisfied with the school and with their treatment, with the superintendent and instructors; that they would return if they had a chance, and no complaint was made to me by any of them of any kind whatever.

The ground of the institution consists of 40 acres of land situated north of and about three-quarters of a mile from the center of Roswell. The view from the main building presents one of the handsomest pastoral scenes to be found in New Mexico; to the south lies the beautiful town of Roswell, and stretching away to the south and east are miles of orchard and alfalfa, dotted here and there with pleasant homes; to the east can be seen the majestic El Capitan Mountain, and beyond the fields of orchard and alfalfa are the vast plains which afford pasture to thousands of cattle and sheep.

The main building is a substantially built three-story and basement structure of red brick. The basement is used for armory, bath and swimming pool, kitchen, dining room, and storeroom; the main floor for class rooms, and the two upper floors for dormitories. The rooms are well but modestly furnished and well kept. I was pleased to find in one of the rooms a library of several hundred miscellaneous books, the gift of Hon. J. J. Hagerman, which have been added to the institute since my inspection of last year.

About 300 feet west of the main building is a two-story frame building containing eight rooms, which was built two years ago, out of the earnings of the institution, as a residence for the superintendent. During last year this building was used as a dormitory, and a six-room frame house was erected, also out of the earnings, for a residence for the superintendent.

When the institute opened in September, 1899, every available bed was occupied, and during the term many applications for admission were refused because there was no place to put them. The earnings of the institute during the last year were $11,000. If another building were constructed equal in size to the present main building, thus affording room to all who wish to enter, the institute would soon be self-supporting and would call for no aid from the Territory, except for the support of the county cadets. The Territorial appropriation to the institute is now $10,000 a year. With the expenditure of $15,000 in a new building, the Territorial appropriation could be reduced to $5,000 a year, which seems to me a good business proposition. The earnings of the institute are limited to its capacity to do business. If its capacity be increased to the extent of the demand for admission, the net earnings will increase in greater proportion, because the same number of instructors and employees can take care of double the number of students.

Acting upon my recommendation of last year, the regents removed the laundry from the basement adjoining the kitchen. The laundry work is done under contract outside the building, and the old laundry is now used as a storeroom, an unsuitable place for it. Being in too close proximity to the kitchen; the stores are affected by the heat. The immediate pressing wants of the institute are proper rooms for storeroom, laundry, and gymnasium. These could perhaps be provided for in the new building, the building which I strongly recommend as a good business proposition, and because it would make a saving to the Territory, and because the proper accommodation of the students demands it.

The old maxim "that a strong body is necessary to a strong mind" is here regarded, and especial attention is paid to gymnastic and athletic exercises. This is not left optional with the students, but is imposed upon all alike, in proportion to their strength, and the good effects of such exercises are already perceptible in the improved appearance of the students. The slouchy appearance which was noticeable a year ago has disappeared, and the boys are taking on the alert, erect bearing and quick tread of the soldier.

The regents have also acted upon my recommendation of last year and have excluded from the school all students save those who are actually in barracks, so that the institute is no longer a day school for the children of Roswell, but is in every essential a Territorial institution; and the good effects of this change of policy can be seen in the better discipline displayed.

I strongly recommend that the law should be so changed as to make elections or appointments to county scholarships good for four years, or during diligence and good behavior. The primary object in the establishment of such schools is to give military training to the youth of the Territory. This object is defeated if continuance in the school for more than one year should depend upon the personal favor or caprice of county officers having the appointing power. I am also of the opinion that the institute should be brought in closer relation with the National Guard by a law which would make graduates of the school eligible to receive a commission as second lieutenant in any National Guard organization in the county of their residence, and giving them a preference for such commissions. It is an indisputable fact that the military training given in the institute is more thorough and comprehensive than can be given to the National Guard, for the reason that while the National Guard soldier is drilled for two hours twice a month the students in the institute are drilled for two hours every day. They also have the advantage of drill in battalion formation, which is denied to the widely scattered National Guard organizations.

I also renew my recommendation of last year that a law should be enacted which would authorize the governor of the Territory to issue commissions to the superintendent and instructors in the school—the superintendent to be colonel, the commandant to be major, and the instructors to be captains—and which would give them power to inflict military punishment for military offenses. Under the present law the superintendent is an aid-de-camp on the staff of the governor with the rank of major, but the powers and duties belonging to the rank are not defined, and therefore the office is purely an honorary one. Provision should be made by law for giving rank to cadets who exercise authority over the main body of students. I deem this of great importance and necessary to the proper maintenance of authority and discipline.

I give below the course of study prescribed for the institute:

Preparatory classes.—Class A: Spelling, reading, geography, language lessons, arithmetic, writing. Class B: English grammar, spelling, reading, arithmetic, geography, United States history. Class C: English grammar, reading, spelling, United States history, arithmetic, physical geography, writing. Class D: English grammar, arithmetic, spelling, algebra, general history, physiology.

The course of study in the collegiate classes is as follows, and county students must be prepared to enter the fourth class:

Collegiate classes.

FOURTH CLASS.

First term.	Second term.	Third term.	Times a week.
Algebra	Algebra	Algebra	5
	Geometry	Geometry	5
Rhetoric	Rhetoric	Rhetoric	3
English history	English history	English history	3
Spanish	Spanish	Spanish	5
Latin	Latin	Latin	5
Drawing	Drawing	Drawing	3

THIRD CLASS.

	Geometry	Trigonometry	3
Geometry	English literature	English literature	5
Spanish	Latin	Latin	5
Latin			5
	Trigonometry	Surveying	3
Drawing	Drawing	Drawing	3

SECOND CLASS.

Analytical geometry	Analytical geometry	Analytical geometry	5
Spanish	Spanish	Spanish	3
German	German	German	3
Latin	Latin	Latin	3
Physics	Physics	Physics	3
Tactics	Tactics	Tactics	5

FIRST CLASS.

Calculus	Calculus	Calculus	5
Astronomy	Astronomy	Spanish history	3
Geology	Geology	Geology	5
Chemistry	Chemistry	Chemistry	5
German	German	German	3

The faculty is composed of James G. Meadors, superintendent, graduate of Washington and Lee University; J. W. Willson, commandant of cadets, graduate of Virginia Military Institute; W. S. Fitzgerald, graduate of Vanderbilt University; L. Martini-Mancini, of the School of Arms, Italy; W. E. Davis, graduate of Washington and Lee University. These gentlemen are thoroughly competent and proficient in their respective departments and are rendering the Territory excellent service. They are well liked by students and highly respected by everyone in the community. Mrs. Meadors, the matron, is an excellent woman for the place. She is gentle, kind hearted, and sympathetic, and bestows a motherly care upon all the students.

In conclusion, I give it as my judgment, founded upon careful investigation, that the institute is doing an excellent educational work; that it is deserving of the patronage of the people of New Mexico, and that it should receive from the Territory greater assistance in the way of appropriations, in the line I have pointed out, than it has heretofore had.

Very respectfully,

W. H. Whiteman,
Adjutant-General.

Hon. Miguel A. Otero,
Governor of New Mexico.

REPORT OF THE TERRITORIAL LIBRARIAN.

Santa Fe, N. Mex., *July 24, 1900.*

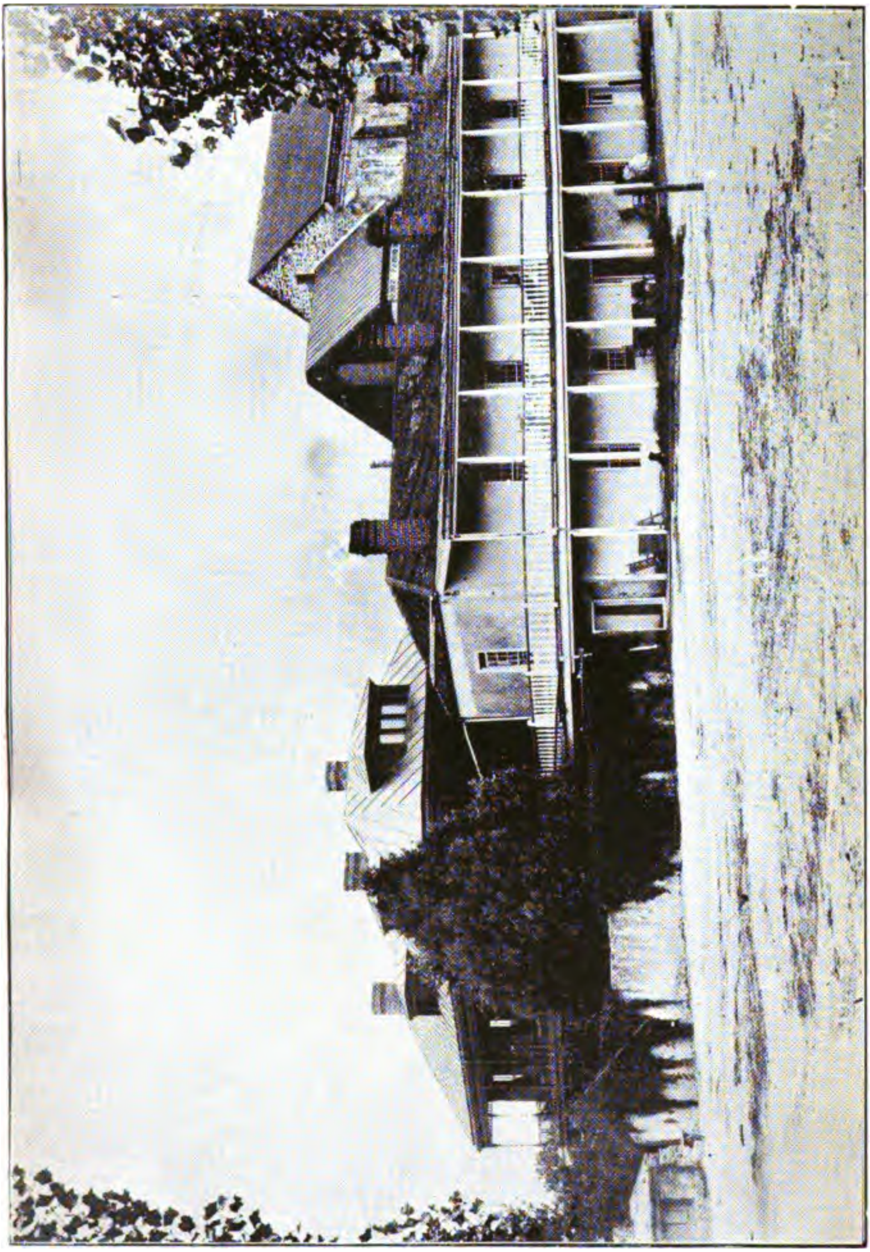
To the Governor:

In response to your call for a report on the condition and progress of the Territorial library during the past year, I have the honor to report:

That when in March, 1899, the library came under my control, I found it in many respects in a very unsatisfactory condition, not because of any fault of those previously having it in charge, but mainly by reason of the cramped and unsuitable quarters to which for years it had been confined. It had been involved in the disastrous fire which in 1892 destroyed the old capitol building, and such of the books as were saved from that conflagration were then placed in the only quarters then attainable, consisting of but four moderate-sized basement rooms, two of which were without light and eventually became storage rooms, and the others without room sufficient to shelve all the books in daily requisition, and where they, with all subsequent accumulations, remained without room for thorough arrangement until their removal in June last to the new capitol building, where they are now being properly shelved and arranged.

Aside from the various public documents sent by the General Government and the several States and Territories (of which there are several tons in almost inextricable confusion, never having as yet been classified or arranged for want of room), the library consists almost wholly of books pertaining to the law, and may be classed as a law library pure and simple, there not being 100 volumes, perhaps, that may not be so designated.

I have never been able to find any catalogue or list of the books, although legislative acts passed in 1853, 1863, and 1882, respectively, each provided for such list, and for continuing it as new books were added. It is almost impossible, therefore, to determine the condition of the library as to the number of volumes at any one time in the past, or to trace its progress thereafter. Enough can be learned, however, to show that nine-tenths or more of the volumes we now have (public documents excepted) have been added since 1882. The act of that year, above referred to, required the librarian, before the next succeeding session of the legislature, to prepare and number a catalogue of the library, and cause each book to be numbered by pasting the catalogue number thereon. Now, while the catalogue so provided for seems to be lost or destroyed, some hundreds of volumes are so numbered, and doubtless in compliance with said act of 1882, and as 400 is the highest number to be found, the presumption is strong that the books in the library did not exceed that number at the time of such numbering. Nor should this appear strange, for up to that date no appropriation for the purchase of books for the library appears upon the statutes, nor have I been able to find any such appropriation until the session of 1887, when $8,000 was so appropriated, to be expended under the direction of the chief justice; and this appropriation and the annual accumulations since 1882, by way of exchanging with the several States and Territories, will no doubt account for all the books that were in the library at the time of the fire alluded to, which had not been catalogued and numbered under said act of 1882. What number of volumes were in the library at



Saint Vincent's Sanitarium, Santa Fe, N. Mex.

the time of that conflagration and what number were then lost or destroyed there is no means of ascertaining, because of the want of a catalogue; nor can it be learned how many volumes have since been added by purchase or otherwise for the same reason, and because from the 27th of February, 1891, until the 30th of June, 1899, when the present board of library trustees was appointed and organized, there is no record of any proceedings of the trustees nor of any purchases made by them during that period.

It will be seen, therefore, that the number of volumes now contained in the library can be ascertained by an actual count only, after they are all in place in the room designed for them in the new capitol; but this the board of trustees have not been able as yet quite to accomplish, though so nearly as to enable a close estimate to be made from the shelf room occupied by those already in place and those yet to be placed, and by this estimate there are now (excluding all that do not pertain to a law library) at least 5,600 volumes, of which 500 have been obtained by purchases made by the present board of trustees during the present fiscal year, and members of said board advise me that there is a balance of appropriations for this fiscal year amounting to some $400 yet to be in like manner expended. I am advised also that said board proposes to have the books properly catalogued, labeled, and numbered as soon as possible after all are in place.

Respectfully submitted.

L. EMMETT,
Territorial Librarian.

THE NEW CAPITOL.

OFFICE OF THE CAPITOL REBUILDING BOARD,
Santa Fe, N. Mex., September 8, 1900.

SIR: The capitol rebuilding board has the honor to respectfully report that, with the exception of a few minor details and of its last meeting when all its affairs and business will be concluded, it has practically completed its duties. At the last meeting of the board detailed statements of all receipts and expenditures since March 1, 1900, at which date the last report and accounts were rendered to your excellency, will be furnished, together with the final report, and thereupon all the books and papers of this board, in its possession, will be duly delivered to the secretary of the Territory.

For the reasons fully set forth in the report of this board to your excellency, dated December 31, 1898, it was found impossible to complete and furnish the capitol at a cost within the appropriation of $75,000, provided for by chapter 39 of the laws of 1895, but of which sum 2½ per cent was found necessary and requisite by the treasurer of the Territory, as duly authorized by the law, to expend in floating such bonds, so that this board received for the purposes of the appropriation the sum of $73,125, instead of the full $75,000. These bonds were sold in two parcels, the first yielding, net, $67,275, which was placed to the credit of the capitol rebuilding fund on May 20, 1897, and the second parcel yielding $5,850 net, which was placed in the same fund on July 10, 1897, making, together the sum of $73,125, above mentioned. Chapter 9 of the laws of 1895, making such first appropriation of $75,000, was approved on February 5, 1895, but it was not until January 15, 1897, that the act of Congress validating the bonds became a law, and from that date until July, 1897, no market could be obtained for the sale of the bonds. It therefore follows that from March 2, 1895, when this board was first organized, until May 20, 1897, it had no funds available to proceed with the rebuilding of the capitol, and had the public-spirited citizens of the city of Santa Fe not contributed the preliminary fund of $2,550, mentioned in the report of this board to your excellency, of December 31, 1898, no progress whatever toward the rebuilding of the capitol could have been made. It is but fitting in this report to give the names of all the parties who contributed to that important preliminary fund. They are as follows: J. R. Armijo, H. B. Cartwright & Bro., Right Rev. Archbishop P. L. Chappelle, C. W. Dudrow, the First National Bank of Santa Fe, Marcelino Garcia, George W. Knaebel, Johanna Kahn, N. B. Laughlin, New Mexican Printing Company, L. Bradford Prince, A. Staab, Seligman Bros., Solomon Spiegelberg, J. G. Schumann, S. Spitz, W. T. Thornton, and George L. Wyllys, and the thanks of the Territory are due to them, one and all.

Section 3 of chapter 39 of the laws of 1895 of the Territory, creating this board and providing for the rebuilding and refurnishing of the capitol, reads as follows:

"That the said capitol rebuilding board shall have full power and authority to reconstruct, rebuild, and furnish said capitol building, and to do and perform any and all things necessary and proper for such purposes, but they shall reconstruct and rebuild the same upon the same foundation and upon the same plans that the former building was, as far as in their judgment may seem proper, and for the best interests of the Territory and most convenient for the structure of the said building."

This board found the old foundation unsound and not fit to be built upon, and, pursuant to its powers contained in the law mentioned and particularly in the section thereof above quoted, it found it necessary to have built an entire new foundation, so that the building throughout is now independent of any part of the old structure with the exception of a part of the stone used in the old foundations and walls, but above the first story of the new building new material in every respect had to be used.

As stated in our report to your excellency of December 31, 1898, it was doubtless assumed by the framer of the act of 1895 that the penitentiary would furnish for the rebuilding of the capitol not only the common labor necessary, but also the requisite skilled laborers, and because of that intimation, if not assurance, in the act this board relied upon procuring from the penitentiary all the skilled labor required; but in that regard it was disappointed, for the skilled labor furnished by the penitentiary, as stated in our report of December 31, 1898, was very little, with the exception of stonecutters, who rendered most valuable service. The plans adopted were based upon such reliance in obtaining the necessary skilled labor from the penitentiary, and when this board found that such skilled labor could not be had, in order to keep within the first appropriation of $75,000, it would have become necessary to change the plans and erect a structure which would have been a monument to the retrogression of the Territory and a disappointment to its people instead of such a building as the law contemplated and the taxpayers expected. We therefore, in our report of December 31, 1898, referred to, called the attention of your excellency to the necessity of an additional appropriation of $60,000, and with the valuable assistance and cooperation of your excellency such an additional appropriation was provided for by the legislature of the Territory under chapter 9 of the laws of 1899, approved February 8, 1899, and soon after validated by act of Congress, and in due time the bonds for this additional appropriation of $60,000 were readily sold, and at a premium of $802.50. The interest on such $60,000 provided by the act was but 4 per cent per annum and yet they brought a premium of $802.50, while the first issue of $75,000, although the rate of interest thereon was 5 per cent per annum, sold after great delay and difficulty at but par, and 2½ per cent thereof had to be paid for brokerage or expenses in order to accomplish the sale. It is true that at the time the $75,000 of bonds were marketed the financial condition of the country was not as good as it was when the $60,000 of bonds mentioned were sold, but still we are of opinion that such financial condition last mentioned was not the only reason the $60,000 in bonds, bearing but 4 per cent interest, brought the premium mentioned, and we flatter ourselves that the beautiful capitol of our Territory, with other improved conditions in our Territory pointing to enterprising progress, induced the paying of the premium on and the ready sale of the bonds. The expenses of the sale of such $60,000 bonds were but $10 through the kindness of the First National Bank of Santa Fe, through which institution a delivery of the bonds to the purchaser was made. The customary prices for delivery of bonds of the character of the $60,000 bonds referred to were very much greater than the nominal charge of $10 made by the bank mentioned, and this board, for itself and in behalf of the Territory, duly appreciates the kindness and courtesy of the First National Bank of Santa Fe in lending its aid so generously in the speedy delivery of the bonds, the proceeds of which, amounting to $60,792.50 net, were covered into the treasury of the Territory to the capitol rebuilding fund on July 15, 1899.

This board has the distinguished honor of further reporting to your excellency that, with appropriate ceremonies, it delivered the new capitol, completed and refurnished, on the 4th day of June, A. D. 1900, to your excellency, for the Territory, and that thereupon the building and premises were placed in the custody and charge of the honorable the capitol custodian committee. The structure speaks for itself, and from the expressions of praise from every source we are pleased to report it is a pleasant surprise and a great satisfaction to the people of our Territory and a monument to its progress as well as one of the many evidences of the rights of the Territory of New Mexico to statehood without further delay. In this connection we are gratified to add this board has successfully striven to keep within the additional appropriation, and that instead of there being a deficiency there will be, we hope, a small surplus to turn over to the capitol custodian committee for the purpose of defraying the expense of completing the beautifying of the grounds and a few small details which it is impracticable for this board to give attention to.

Total amount covered into the capitol rebuilding fund		$133,917.50
Proceeds of the first appropriation of $75,000	$73,125.00	
Second of $60,000	60,792.50	
		133,917.50
Disbursed by board for all proper purposes to the date of this report		133,010.12
Balance on hand in such capitol rebuilding fund		907.38

There are yet some outstanding accounts against this board, and also in its favor, and it is hoped such accounts as may be due to the board will be paid and the outstanding accounts against the board settled at its final meeting.

All accounts against this board, audited and paid, are fully itemized, and copies thereof retained on file, with the other records and papers of the board. The original accounts are all duly approved by Messrs. I. H. and W. M. Rapp, the architects and superintendents, and by the president and secretary of the board, and are always open for the inspection of any person or persons desiring to see the same, the originals being on file in the office of the Territorial auditor.

In our reports to your excellency heretofore have been attached, and in our final report to your excellency there will also be attached, detailed statements or tables showing the number of each voucher or account audited, allowed, and paid, the number, date, name of the person or party in whose favor the same is, and what it is for.

To the date of this report this board has audited, allowed, and issued fifteen hundred and thirty duly certified and approved accounts or vouchers.

The dedication ceremonies of the new capitol were held on the 4th day of June, A. D. 1900, and were quite imposing. A great many people from all over the Territory and elsewhere attended such ceremonies. A joint committee, consisting of Messrs. R. J. Palen, William H. Pope, and Samuel G. Cartwright of this board, and the full capitol custodian board, consisting of Messrs. Solomon Spiegelberg, George H. Wallace, secretary of the Territory, and Alfredo Hinojos, together with Solicitor-General Edward L. Bartlett, was duly constituted a committee of arrangements in such dedication, and that committee performed its arduous duties in a highly satisfactory manner. Mr. George W. Knaebel, the efficient clerk of this board, was appointed and acted as marshal of the day, and aided very successfully the committee on arrangements in their manifold duties. A large procession was organized and formed by the marshal of the day, and consisted of such marshal, Col. George W. Knaebel, and his chief aids, Maj. Frederick Muller and Mr. H. O. Bursum, and other aids at the head of the line, and was divided into three divisions. Almost all of the militia of the Territory took part in the procession, and in addition there were Carleton Post, No. 3, G. A. R., Department of New Mexico, and visiting comrades, and Department Commander John R. McFie, of the Grand Army of the Republic of New Mexico, and his staff; a large number of carriages, containing your excellency, Chief Justice William J. Mills, and the associate justices of the supreme court of the Territory, Solicitor-General Edward L. Bartlett, Hon. George H. Wallace, secretary of the Territory, the Most Rev. Peter Bourgade, archbishop of Santa Fe, the Rev. J. L. Gay, the members of the capitol custodian committee, the members of this board, Messrs. I. H. and W. M. Rapp, the architects, and many other prominent officials and citizens, the United States Indian school (of Santa Fe) cadets, led by their highly praiseworthy military brass band, the students of St. Michael's College, and many citizens in carriages and on horseback. There were three military brass bands in the procession, consisting of the band of the First Cavalry, New Mexico militia, the East Las Vegas military brass band, and the United States Indian school brass band mentioned, and their music was the admiration of all. The militia was placed under the command of Col. John Borrodaile, and Troop E, First Squadron Cavalry, New Mexico Militia, and Company I (Otero Guards), First Regiment New Mexico Militia, together with the band of the First Regiment Cavalry, acted as an escort to his excellency Miguel A. Otero, the governor of New Mexico. The procession started at half past 2 o'clock p. m. on June 4, 1900, and marched to the new capitol, where it was reviewed by your excellency and adjutant-general and staff and other personages, and at 3 o'clock p. m., in the beautiful and commodious hall of the house of representatives, the dedication ceremonies were held, the Most Rev. Peter Bourgade, archbishop of Santa Fe, leading in prayer, and Rev. J. L. Gay, closing. Chief Justice William J. Mills presided and made an eloquent address. President Francisco A. Manzanares, of this board, followed in a very appropriate speech, and at its conclusion formally delivered the building and premises, in behalf of the capitol rebuilding board, to your excellency for the Territory. Your excellency thereupon, in an eloquent and interesting speech, duly accepted the building in behalf of the Territory, and transferred the custody thereof to the honorable the capitol custodian committee, which committee, by Hon. George H. Wallace, the secretary of the Territory and ex-officio a member of the capitol custodian committee, duly accepted the custodianship in an appropriate address. Ex-Governor L. Bradford Prince then made an eloquent address, which enlisted the rapt attention of the large audience which crowded the hall. During the ceremonies of dedication the brass band of the First Cavalry and the East Las Vegas military band, which were both stationed in the hall throughout the ceremonies of dedication, discoursed appropriate music, rendered in an excellent manner, to the great delight of the listeners. In the evening the building was brilliantly illuminated by the electric lights in every room and hall and presented a most beautiful and attractive sight, the light on this occasion having been furnished, free of charge, by the Santa Fe Water and Light Company. During the evening a reception was held by your excellency, together with your staff and Adjt. Gen. William H. Whiteman, and was very largely attended. The building was thronged with a great multitude of people, many in evening dress, who paid their respects to your excellency and staff. All the many rooms and corridors were brilliantly lighted, and there were many gentlemanly ushers and pages, provided by the committee on arrangements, who all took special pains to show the rooms in their charge and answer all inquiries. The reception was had in the main corridor of the second story of the building, and during the evening the East Las Vegas military band rendered most excellent music from its position in that corridor and the First Regiment Cavalry band in the hall of the house of representatives. The multitudes attending the reception passed all through the numerous rooms of the building many times and lingered here and there admiring the same and listening to the beautiful music. All were delighted, and the occasion will be one that will never be forgotten by those who attended it. The only regret was that New Mexico had not been admitted into the sisterhood of States, as by right she should and ought to have been long ago.

In order that there may be a record of the description of the new capitol, we deem it proper to here give a brief description. The structure is a massive one of stone, brick, and steel, and an example of modern classical architecture, and reflects great credit on the taste, skill, and ability of the architects, Messrs. I. H. and W. M. Rapp, of East Las Vegas, N. Mex. The main façade is approached by a broad terrace to the flight of steps leading to the portico, which, with the six fluted columns with Ionic capitals, supporting the enriched pediment, the tympanum of which is carved with the coat of arms of the Territory, form a graceful and imposing entrance becoming to the first building of the Territory. There are two other entrances in the main façade; also one at each end of the building.

The first story is of buff cut stone, above which the walls are of buff Roman tile, with a heavy cornice and enriched frieze girdling the entire structure.

Over the central portion of the building is a dome, resting on a massive die, intended to receive the different groups of statuary to be added from time to time in keeping with the growth of the Territory. Surmounting the dome is a group of columns, forming the lantern and supporting the flagstaff.

The appearance of the building is most artistic and pleasing to the eye, and occupying an advantageous position in the midst of the beautiful capitol grounds, surrounded, as it will be, by well-kept lawns, trees, and shrubs, with mountains in the background and the dark-blue cloudless sky of the future Sunshine State overhead, forms a picture that one might search for and not find surpassed.

Halls, corridors, and stairs.—On entering the building from the portico one passes the vestibule, on one wall of which is the bronze tablet carrying the names of the officials connected with the construction of the building. Dividing this entrance from the main hall are magnificent doors, with plate-glass panels and handsome brass fittings. On passing through these doors one is impressed with the size and beauty of the corridors, which traverse the entire length of the structure. At the juncture of the walls and ceiling is an extremely ornate stucco cornice, in the treatment of which the beautiful egg and dart and dentil courses show to their best advantage.

The ceiling is further relieved at intervals by beams crossing from wall to wall, carrying this same enrichment, and in conjunction with which are smaller beams, also ornamented, interlacing each other and forming a succession of panels the entire length of the corridors.

At the walls directly underneath these large cross beams are the numerous Doric pilasters resting on the molded marble pedestals, which, membering with the Messinian marble wainscoting, continue around the corridors and up the stairways. The floors of all the corridors are of Mosaic marble, with white field and Greek fret border in dark marble, with line on each side of dark Champlain marble. These floors are broken into mats or squares conforming exactly with the pilasters and the beams of the ceiling.

At either end of the building are the staircases extending to the third story and to the gallery of the house of representatives. These stairways, with their beautiful newel posts of small fluted Ionic shafts and the perforated grills in pure Greek design forming a balustrade, are cast iron, finished in electrobronze, and with the Italian marble steps form a most imposing piece of architecture, and the effect of lightness combined with strength is in this instance most successfully carried out.

Governor's rooms.—On the first floor in the southwest corner of the building are the apartments designed for his excellency the governor of New Mexico. These rooms are finished in golden oak with paneled ceilings and ornamented frieze, and are encircled by a heavy wainscoting supporting the pilasters to the ceiling and forming an imposing finish for the various openings. The floors are of polished quarter-sawed English oak.

Adding to the attractiveness of the reception room is a fireplace with appropriate fittings, the carved mantel harmonizing with the rich and handsome furnishings of the room. The furniture of these rooms is mahogany, the various couches and easy chairs being upholstered in leather, and the desks being models of elegance and convenience. The oriental rugs and the hangings add the needed touch of color, and the massive old brass electroliers are works of art and at night flood the rooms with a glow of light.

Secretary's rooms.—Immediately across the corridor from the governor's rooms is the suite prepared for the secretary of the Territory, the Hon. George H. Wallace being the present incumbent. This suite consists of a large reception room, private office, clerical office, and a large and capacious vault with ample room for the valuable and important documents and papers belonging to this department. These rooms are finished throughout in dark quartered oak, the floors are of hard wood, the whole effect being very rich and handsome.

The furniture is of oak, everything needful for the comfort and convenience of the occupants being provided.

Treasurer's rooms.—In the northwest corner of the building are the rooms arranged for the use of the Territorial treasurer. The private office is tasteful and comfortable, with its fireplace with tiled facings and handsome hard-wood mantel, bright rug, easy chairs, and convenient desks. This room connects by double arches with the outer office, the occupants of which are separated from the public by oak screen partition with necessary counters over which the general business is transacted. In connection with this department is a commodious fireproof vault.

Auditor's rooms.—Opposite the treasurer's office and across the corridor are the rooms of the auditor. This suite consists of private and clerical office, with large vault. The finish and furniture of these rooms is of oak and tasteful in design.

Land commissioners' rooms.—Adjoining the auditor are the rooms occupied by the land commissioners. This suite consists of two rooms with vault, all finished and furnished in oak in a manner both attractive and substantial.

Adjutant-general's rooms.—The adjutant-general has two rooms on the east side of this floor, handsomely finished in oak and furnished with everything needful to the department of this official.

Superintendent of public instruction.—In the center of the building on the east side of the first floor is the room assigned to the superintendent of public instruction. The finish of this room is of quartered oak, and the furniture includes bookcases, desks, chairs, and tables suitable to the requirements of the office.

The remaining rooms on this floor consist of two unassigned offices, a public toilet room, and a ladies' toilet room, marble tiled, with massive marble partitions.

Second floor.—The second floor is assigned to the council chamber, the supreme court rooms, the offices of the clerk of the supreme court, the private rooms of the justices of the court, the offices of the solicitor-general, and the Territorial law library.

Council chamber.—The council chamber occupies the entire north end, and is a large lofty room extending through two stories. The treatment is renaissance, with massive beamed, arched, and coffered ceiling, each panel being studded with electric lights in rosettes. Under the ceiling is a handsomely ornamented cornice, supported by perfectly proportioned fluted pilasters resting on the bold paneled pedestals, which form an important factor in the general finish and beauty of the room. These fluted shafts, placed at intervals around the walls, extending to the ceiling, are terminated with their handsomely carved classical capitals, and contribute materially to the completeness of the design. The balcony for the public is in the rear of the chamber, directly opposite the president's desk, and is entered immediately from the main corridor on the third floor. The front of the balcony is shaped to a graceful curve and enriched with carved moldings forming a paneled effect, each alternate panel carrying a triple torch of electric light, and the whole terminated with a line of Greek fret border. The balcony is furnished with opera seatings arranged in tiers on terraces, thus affording a perfect view of every visitor. The ceiling under the balcony is laid off in panels of carved-wood moldings. The desks for the president and clerk are handsomely carved pieces of furniture, and the chairs for the president and his guests correspond in carving and are upholstered in maroon leather. Appropriate desks and revolving chairs are provided for the members and are arranged in terraces, each desk directly facing the president. The doors opening from this chamber are upholstered in maroon leather studded with brass heads forming a wreath and festoon. The floor covering is dark, rich red, which harmonizes with the color scheme of old ivory and gold in which the room is finished, and whether seen by day with the sunlight streaming in through the large, handsome windows, or by night with the room flooded by the soft glow from the myriad electric lamps, the effect is very beautiful. Immediately back of the president's platform, and also from the corridor, you enter the council lobby. This lobby is finished throughout in quartered golden oak, has a large tiled fireplace with hard-wood mantel, and is furnished with settees, armchairs, and couches, making pleasant retiring quarters for the members during recess.

From this room you enter the post-office and the reading room, both devoted to this branch of the legislature. In connection with this lobby are rooms for the clerical force and committees appropriately and nicely furnished, a vault for the safekeeping of important papers and records, and a marble-tiled and marble-partitioned toilet room for the exclusive use of the members. Directly off this lobby is a small hall containing a private stairway, shielded by a handsome screen, which leads to the four committee rooms for the use of the council and the private office for the president of the council.

Library.—In the center of the building, on the east side of this second floor, directly facing the main entrance, is a large, light, pleasant room devoted to the Territorial library. Here are to be found the book stacks and cases, arranged in alcove form, containing the law library. The capacity of the stacks at present is 10,000 volumes, and it can be increased to accommodate many more as necessity arises.

Every care has been successfully taken to provide this room with ample light, and with the large reading tables and comfortable chairs the room is one of great attractiveness. The entire south wing or end of the second floor is devoted to the supreme court, private room for the judges, and a room for the clerk, with a large vault for the preservation of records and papers.

Supreme court room.—This room is one of the handsomest in the building, and is a very large, almost square, apartment, well lighted from the south and east. A heavily molded cornice covers the beams that carry the ceiling, which are supported by massive columns with enriched capitals. The finish of the room throughout is quartered golden oak with dull satin polish. The judges' bench, with chairs for the chief justice and associate justices, stands upon a dais. Directly in front of the bench are two tables, with a number of easy chairs for the use of the members of the bar. Then comes the rail separating the members of the bar from the general public. The space for the public is filled with opera seatings. The judges' chairs are handsomely carved and upholstered. The space behind the bar rail is richly carpeted in shades of golden brown, which, blending and harmonizing with the color of the woodwork and furniture, completes the great elegance of the whole effect. Leading directly from the court room is the clerk's office, which is conveniently fitted up for its purposes, with a counter and rail dividing the office into private and public sections. The room contains a handsome fireplace, desks, chairs, and all necessary furniture. The judges' rooms are finished in oak, with tiled fireplaces and quartered-oak mantels, each room having the floor covered with bright rugs and being furnished with desks, revolving and wall bookcases, couches, and easy chairs. Accessible to the rooms is a private toilet room.

The solicitor-general's office.—The suite of rooms constituting this office is on the right of the main entrance, in the second story. The fittings and furniture are very handsome and complete. Bright rugs cover the floors, and, with the revolving and wall bookcases, desks, and all other furniture in oak, present an appearance that is unusually pleasing.

House of representatives.—The entire third floor, excepting the north wing, is devoted to the use of the representatives, the main legislative hall occupying the central portion of the building, and the north wing contains the lobby, speaker's private room, post-office, clerk's office, committee rooms, and coat and toilet rooms. One of the most beautiful and spacious rooms of the building is the lobby and smoking room for the members of the house of representatives. While the room is large, it is suggestive of coziness, in that it is partially divided by two rows of large fluted oak pillars. The generous tiled fireplace, with mantel carrying out the same design used in the room, with broad shelf supported by pillars carved to match those used in the room, the hard-wood floors covered with bright rugs, together with the luxurious furniture, can not help but impress one that everything possible has been arranged for the comfort and convenience of the members.

Assembly hall.—The largest, most capacious room in the building is the assembly hall for the house of representatives. Harmonious in style, coloring, and proportion, it vies with the council chamber in beauty and makes the awarding of first choice a hard matter. One views with pleasure the rich color of the woodwork, the beautiful ceiling with the arched cove, and the arcaded balcony, and is almost ready to proclaim this the favorite, when the vision of the council chamber, with its beautiful lines and chaste ornamentation and coloring, rises before the mind's eye, and one is forced to admit that each room is so well designed and treated that it is perfect of its style, and the choice between them would be a matter of taste with the beholder.

In architectural treatment the Italian renaissance predominates in this room, the numerous groups of two and three pilasters, with their delicately outlined and carefully modeled capitals, the rich frieze embellished with the lines of carved molds, and at intervals at the pilasters, with the groups of wreaths and festoons, form a bold and appropriate support to the heavy cove and grained ceiling.

The prominent beams traversing the ceiling each way, carrying the familiar and beautiful golosche design, intersect each other with perfect precision, while the shadows of the deep coffered panels exaggerate their depths and throw into bold relief their delicate detail.

The central feature of the ceiling is the flat dome effect so artistically treated in stucco, with its many ribs converging to a circle studded with electric lights, which form a brilliant border to the panel of art glass.

Across the rear portion of the hall, and extending through the arcade, is a terraced balcony for the public, reached directly by stairs beginning at the platform entrance to the house of representatives, at the top of the west main stairway. The front of the balcony is in itself a work of art. Treated in stucco, its dainty fluted pilasters and molded panels supporting the mahogany rail upon the richly ornamented base, with the arches of the arcade in the background, and molded soffits, produce an effect which, seen from the speaker's platform, is one of great beauty.

The alcove, with arch overhead, which forms the back of the speaker's platform breaks the wall opposite the balcony and adds a touch of variety.

The entire finish of the hall is of mahogany, carrying out in its design the main lines and part of the ornamentation used in the frieze.

The chairs for the speaker and guests and the three massive desks are of the same beautiful wood, matching in design and color the general finish of the room. The desks and seats for the members are arranged on the terraces in such manner that each is in direct line with the speaker.

The doors are upholstered in leather, with plate-glass medallions and ornamented with brass.

In addition to the lights in the dome, the ceiling is studded at intervals with groups of electric lights, and around the walls, between the pilasters, are double lights in the form of torches.

The promise of the exterior is more than fulfilled in the interior of this noble building, and one feels impressed with the idea that the architects have not neglected or overlooked the slightest detail, but have given their very best and most constant thought to the designing and construction of a building that is perfect, complete, and harmonious in every point.

Electric wiring.—The wiring of the building was executed by the Doss Brothers' Electric Construction Company, of Denver, under the special direction of the architects. On each floor there are two cut-out cabinets containing switches for main line and distributing circuits. These cabinets are lined with marbleized slate and are under lock and key.

In the basement is a 500-light transformer, where the current is reduced from 2,200 to 110 volts. Where the wires run through masonry, they are contained in brass-armored conduits; where they run through wood or plaster, they are supported on noncombustible insulators or wiring tubes. The wire used throughout is 98 per cent pure copper and covered with an insulation known as okanite and an additional braided protection.

All the lights in the ceilings are controlled by flush switches.

Fixtures.—The electric fixtures were executed from special designs and were manufactured by the Mitchell & Vance Company, of New York. They are in old brass, and are works of art. The corridor electroliers of the first floor are all ceiling cluster lights, as are also those in the vestibules.

The two and three light brackets of the council chamber and house of representatives are executed in the torch effect. All other fixtures extend down from the ceiling. The portico is lighted by four large globes, 18 inches in diameter, containing four 16-candlepower lamps each.

The street or buttress lamps are beautifully executed in wrought iron, and each contains 36 lamps, inclosed in ground-glass globes.

There are between 800 and 900 lights in the building. The placing of fixtures was done by the Santa Fe Water and Light Company, who are to supply the current for the lighting of the building until such time as the penitentiary may be able to supply it, as provided by the laws of 1899.

Plumbing fixtures.—There are 26 fixtures in the building, which were manufactured by the L. Wolf Plumbing Company, of Chicago and Denver. The closet stalls are of marble, with nickel-plated trimmings throughout.

There is a circulating hot-water system connecting with all lavatories.

The heating and plumbing contractors were St. John Brothers, of Colorado Springs, Colo.

Ventilating system.—The building is arranged for a complete system of ventilation. The fresh-air ducts enter the different rooms at a point 8 feet above the floor. The foul air is taken out near the floor and carried out at the top of the building.

The fresh air is taken in directly under the front steps, and the air is to be first warmed, then forced into the different apartments by a fan propelled by a motor.

Plumbing.—The plumbing being one of the most important features of the new building, a short description no doubt will be interesting.

The water is brought in the basement of the building through a 4-inch cast-iron main from the main supply. A 2-inch line of pipe is carried to wrought-iron tanks in the attic of each wing. These tanks each hold 3,500 gallons and fill with water automatically through pipes connecting with the tanks. Also, with the main 4-inch supply is a 2-inch line of pipe running from the basement to the roof in each wing, with outlets for hose connecting for fire protection in each floor. At each outlet (there being seven in all) is a nickel-plated hose rack containing 75 feet of the best 2-inch linen hose, with nickel-plated nozzles and connections for each outlet. In the event the water should be shut off from the main, there would be ample water in the tanks to protect the building against fire.

The building is heated by the low-pressure steam system. The boilers are located in the boiler room, in the basement, and are two in number, 42 inches in diameter and 12 feet long.

There is about 5,000 feet of radiation in the building and, with the exception of extreme cold weather, one boiler will be sufficient to heat the building. The apparatus is noiseless and a success in every respect.

It is a matter of fact that the capitol furnishings could be and were supplied largely by a business house in the Territory, as has been done so successfully by Mr. Charles Ilfeld, of Las Vegas, who secured the contract for carpets, shades, and a considerable part of the furniture in competition with the heaviest dealers, both East and West.

Plate glass is used in all windows and doors. This was furnished by H. G. Coors, esq., of Las Vegas.

The metal work on the dome was done by Mr. C. W. Fair, of Denver, and on the roof, etc., by the Willis Manufacturing Company, of Galesburg, Ill. The Philip Rinn Company, of Chicago, were the contractors for the interior wood finish, and the Sayre-Newton Lumber Company, of Denver, for the book stacks and cases and other fixtures. The remainder of the furniture was contracted for and delivered by the Scarritt-Comstock Furniture Company, of St. Louis, Mo., with the exception of the furnishings in the governor's rooms, the furniture in those rooms having been purchased from Messrs. A. A. Andrews & Co., of Chicago, and the rugs and hangings of the Los Angeles Furniture Company, of Los Angeles, Cal. The contractor for the iron stairways and for the iron lamps on the buttresses was the Chicago Ornamental Iron Company, and the Art Marble Company, of Chicago, was the contractor for the marble treads and tiling. The scagliola wainscoting was contracted for by the Florentine Scagliola Company, of Chicago. P. & F. Corbin, of Chicago, were awarded the contract for hardware; the Victor Safe and Lock Company, of Cincinnati, Ohio, for the vault doors and facings, and the Interior Wood Working Company, of Chicago, for the beautiful hard-wood mantels. The Kenwood Bridge Company, of Chicago, was awarded the contract for the steel trusses in the dome. The St. Louis Expanded Metal Fireproofing Company furnished the greater portion of the metal lath used through the building, and the Thorne & Hunkins Lime and Cement Company, of St. Louis, Mo., furnished the plaster and cement. The contract for the chipped glass for the dome was let to the Drey & Kahn Glass Company, of St. Louis.

All of these contractors were the lowest bidders and have performed their duties, respectively, in letter and spirit. The cement walks in front and on the sides of the building were laid by Mr. James McCorriston, of Albuquerque.

We are pleased to report that according to prevailing prices at the time of the awarding of the several contracts, we obtained in every instance the bottom prices.

A stone saw and some derricks and tools for which this board had no further use and which cost about $500, but which we could not sell at an adequate price, we have delivered to the superintendent of the penitentiary for the use of that institution.

This board, duly appreciating the most valuable and hearty cooperation of your excellency in all its labors, and also the cooperation of the Atchison, Topeka and Santa Fe Railway Company, and of the Denver and Rio Grande Railroad Company, particularly in granting to this board reduced freight rates, and also appreciating the cooperation of the superintendent of the penitentiary and others, at its last meeting passed a unanimous resolution of which the following is a copy:

"Moved and seconded and unanimously carried that the secretary, with the assistance of the clerk, prepare and send suitable resolutions of thanks for valuable assistance and cooperation in the work of this board to his excellency, Miguel A. Otero, governor of New Mexico; to the Atchison, Topeka and Santa Fe Railway Company; to Mr. H. S. Lutz, the agent of that railway company at Santa Fe; to the Denver and Rio Grande Railroad Company agent, Mr. T. J. Helm, its agent at Santa Fe; to Hon. H. O. Bursum, the superintendent of the penitentiary; to the Santa Fe Water and Light Company for its great generosity in supplying such brilliant lights and so many of them, free of charge, on the evening of the dedication of the new capitol; to Messrs. I. H. & W. M. Rapp, the competent and trustworthy architects; and to Mr. George W. Knaebel, the efficient clerk of this board."

Very respectfully submitted.

THE CAPITOL REBUILDING BOARD,
By F. A. MANZANARES, *President.*
WM. H. POPE, *Secretary.*

HON. MIGUEL A. OTERO,
Governor of New Mexico, Santa Fe, N. Mex.

In transmitting the very complete and satisfactory report of the capitol rebuilding board, I deem it my duty to publicly acknowledge the obligations which the Territory of New Mexico is under to the gentlemen comprising that board, to the architects, I. H. & W. M. Rapp, and to Col. George W. Knaebel, the exceptionally efficient clerk of the board. They have all worked together in harmony, with the sole view of producing for the Territory the best possible results for the small amount of money which was at their disposal for the purpose. Each member of the board served as such for more than five years without any compensation whatever, or even being reimbursed for personal expenses while attending to his duties at Santa Fe, although two members of the board reside many miles distant and had to attend such meetings at great loss of time and expense. The clerk to the board is a lawyer in active practice, but gave his time and legal knowledge outside of his duties as clerk, so that the board was not required during the five years of its active labor to obtain any other legal services in connection with the preparation and carrying out of the numerous and important contracts for work of this magnitude. The work of the board was attended with many embarrassments which could not have been anticipated. The stone with which it was expected the building would be constructed could not be found, the quarry having become exhausted. Skilled labor could not be obtained at the penitentiary, as had been expected, and had to be largely imported at great expense. The convict labor, which it was expected would be free, actually cost more than $7,000. The price of all materials was largely advanced during the construction of the building, so that special care and management were necessary so as to accomplish its completion within the limits of the appropriation. This was, however, done, giving to the Territory a capitol building which would be a credit to any State in the Union, and which we consider a fitting monument to the intelligence and progress of our people. Not only was the capitol building proper completed within the limits of the appropriation, but it was completely furnished, broad cement walks laid, and handsome iron gates provided for the west entrance, so that on June 4, the day on which the building was formally turned over by the rebuilding board to the capitol custodian committee, it was ready for use and within a week all the Territorial officers had moved into it, and there is no request for an appropriation "to complete" the structure.

THE PENITENTIARY.

New Mexico Penitentiary,
Santa Fe, N. Mex., September 1, 1900.

Sir: Complying with your request, I have the honor to herewith submit report of the condition of the New Mexico penitentiary as follows, to wit:

On September 1, 1899, there were confined 183 convicts; have received since that time 127, making a total of 310; 93 of this number have been discharged during the above period and 3 have escaped, leaving at the present time 214.

IMPROVEMENTS.

The improvements for which money has in a large measure been expended, apart from the labor of the convicts, since the present management assumed control are as follows: House cleaning and repairs on main building; establishment of a hospital ward, with iron spring cots, mattresses, pillow cases, pillows, sheets, and closet; cleaning, painting, and repairing cell house; 1 C. W. Raymond & Co. brick machine and repress; 1 Standard Dry Kiln Co.'s dryer; 1 patent downdraft round brick kiln; 1 patent downdraft square brick kiln; 1 new Ames boiler and settings; 1 set tools and fixtures for tin shop; 3 pair large American mules; 4 3½-inch wagons; 1 transfer wagon, light; 1 buggy; agricultural implements; 1 Knowles steam pump, pipe line to well, and pipe extension to pond; purchased and leased adobe-clay lands.

One dry pan clay crusher or grinder, which is being put in place. This will handle the mountain clays, from which the street paving brick and fancy sidewalk brick are made, which are far superior to anything of the kind made west of Kansas City, and not excelled even there; and being so much nearer the markets of the Southwest than those made in St. Louis, Kansas City, or Colorado, the expectation is fairly well sustained that a large production will at an early date be in demand. The difference in the price in favor of the home production gives confidence that brick paving will soon be adopted by municipal and corporate authorities as well as individuals and take the place of other material in paving their streets and sidewalks. Economy and good taste alike will make this course an obligatory one, and even now capable managers have taken the lead in selecting the handsome pressed and glazed brick made at this institution for their permanent improvements of the best and finest designs.

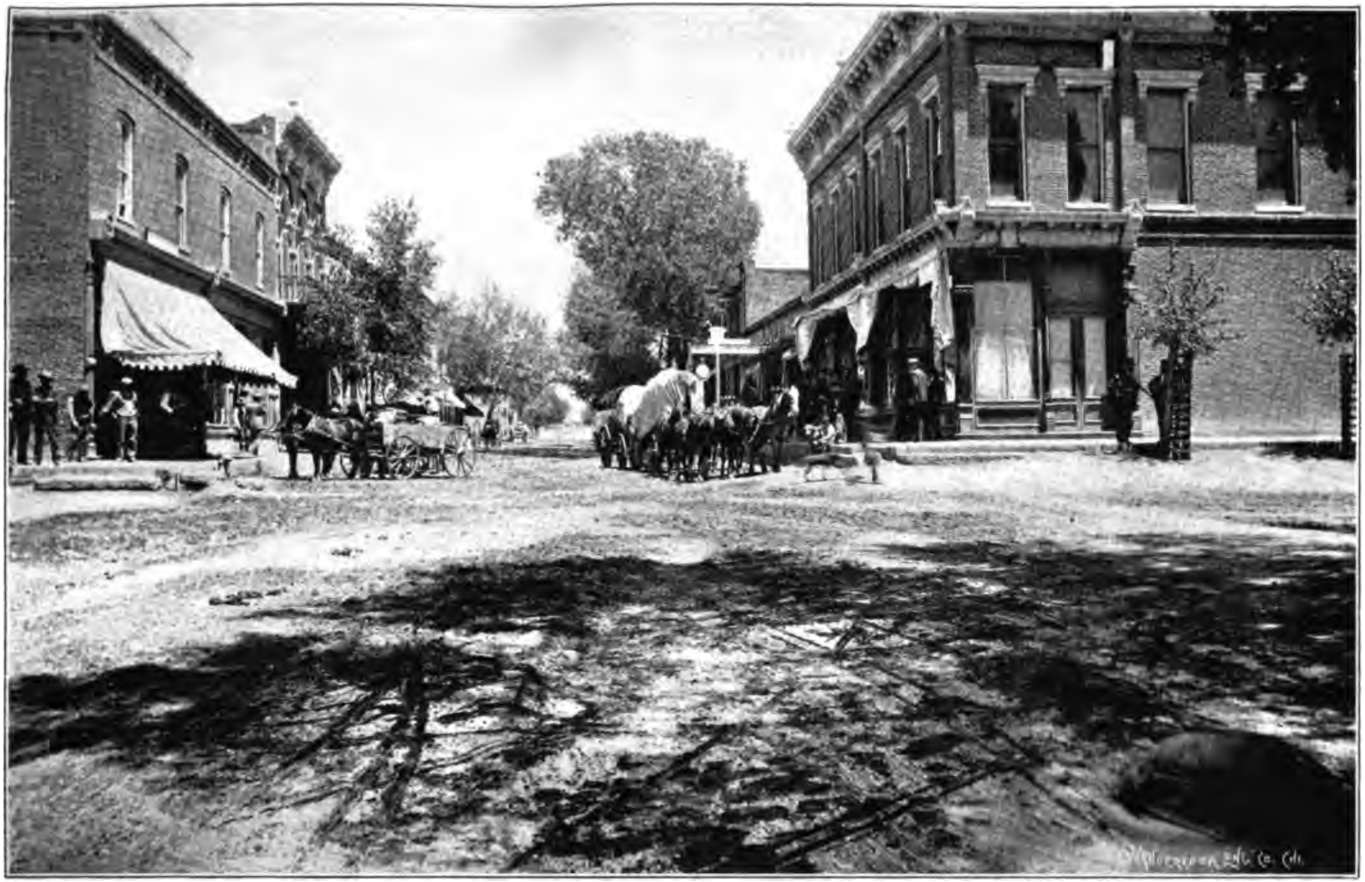
To furnish such steam as the brick machinery, dry pan, and dryer demands a new 80-horsepower tubular boiler, at a cost of $1,741, has just been set in place, and a stack designed to be 90 feet in height is now under construction, and is up to a height of 27½ feet above the base, having in that length over 50,000 brick.

The brickmaking machine has a capacity of 60,000 common brick per day of ten hours. The repress, through which the pressed building and figured sidewalk brick pass, 20,000 for the same length of time. As now arranged the working day of the average convict and the running time of the brick machinery is something less than eight hours.

With the new dry-pan grinder in place the power of the various parts of the machinery will be very near full proportion. Thus, the producing capacity of the whole will be much increased and the manufacture of the brick facilitated.

The management will soon erect more brickkilns for the burning of brick. Additions will be made from time to time and as required to meet the growing demand.

Work on the new extension of the cell house has been carried on since my last report, but has not been prosecuted vigorously on account of the pressing need of making many needed repairs, and also because of the necessity of completing the brick plant, which is already the pride of the taxpayers of the Territory, and which will no doubt go a long way to placing the institution on a self-supporting basis.



STREET SCENE, SILVER CITY.

HEALTH AND DISCIPLINE.

At no time since my last report has there been any cause for uneasiness as to the health of the convicts. On the contrary, the general health has been good, and it is quite gratifying so to state.

Discipline has been successfully maintained without resorting to the severest punishment authorized by the honorable board of penitentiary commissioners—the spanking system—with a very few exceptions. This result is due to a general willingness on the part of the prisoners to perform the work assigned faithfully. Minor infractions of the rules are punished by the withdrawal of some privilege previously extended as a reward for more than average good conduct.

All the prisoners are regularly employed. There are none allowed to be idle unless when sick or for some other sufficient cause; the regular employment being one of the principal factors in maintaining good health throughout the institution and tends in a great measure to further the general discipline.

Respectfully submitted.

H. O. Bursum, *Superintendent.*

Hon. Miguel A. Otero,
Governor of New Mexico, Santa Fe, N. Mex.

BOARD OF HEALTH.

Taos, N. Mex., *July 4, 1900.*

Sir: The New Mexico Territorial board of health has the honor to submit the following report:

The general healthfulness of the Territory and climatic conditions has been such for the last year that there has been an entire absence of epidemics. The board has distributed, in Spanish and English, 2,000 copies of typhoid fever literature, and is happy to report that the dread disease (smallpox) at the present time is almost unknown in the Territory. The pamphlet treated of sanitary precautions and safeguards to be taken to prevent the disease, and also, if cases had occurred, what sanitary precautions should be taken to prevent its spread.

All the licensed physicians in the Territory have received literature treating of bubonic plague, instructions for isolating cases, and copies of the various treatments used in such cases, through the courtesy of United States Marine-Hospital Service. There was a systematic investigation made by the Treasury Department through "The leprosy commission," as to the existence of any cases of leprosy in the various States and Territories, and we are happy to report that no cases of this disease were found in this Territory.

During the last year there have been about 100 cases of smallpox in the Territory, but the board is not aware of the existence of a single case at this time. The mortality has been very small. General vaccination has been done all over the Territory, and we feel that the Territory is to be congratulated on the small number of cases. Most all the States and Territories, even Canada, have experienced a smallpox epidemic; in Ohio there were nearly 2,000 cases alone.

The board of health distributed 2,000 copies of smallpox pamphlets, as to diagnosis, treatment, isolation, and quarantine, and recommending vaccination; with results that intelligent people in isolated hamlets were able to handle cases properly.

Consumption.—The fresh-air treatment of consumption in such resorts as Ragaz, Davos, and Saranac have proven to be a success. The Lancet (London) recommends the keeping of tubercular patients out of doors for the entire twenty-four hours. No more suitable place as to climatic conditions, altitude, sunshine, or perfect drainage can be found on the American continent than New Mexico to-day.

The United States Government has recognized this fact by establishing a resort for its consumptive soldiers at Fort Stanton, N. Mex. As this Territory is fast becoming famous for its climate and many tubercular cases are coming here, the board has issued a circular on "Expectoration" to hotel and boarding-house keepers, to post in conspicuous places, and would recommend the following should be carried out in hotels, boarding houses, and other places of public entertainment:

It is the safer way to subject to a careful cleansing and disinfection all rooms that have been occupied by consumptives. Particularly in rooms where strict sanitary rules have been observed, the need of disinfection is emphasized by the fact that the germ of tuberculosis retains its infective powers a long while, under favoring conditions.

The bacillus of tuberculosis is hard to kill; use, therefore, only those disinfectants which are the most rapidly destructive of it when in its dry state. In fresh sputum the bacillus requires different treatment. In disinfecting a room that has previously been occupied by a consumptive, let the order of procedure be about as is recommended in the following, sorting out and disinfecting the clothing and other smaller things first:

(*A*) *Clothing.*—Disinfect with steam or by boiling. Boiling for half an hour will disinfect any article that can be subjected to that process. Steam disinfection for one hour, properly done, is just as trustworthy and has the advantage of wetting and shrinking fabrics less. Steam disinfection on a small scale can be done in the common wash boiler by supporting above the water, with two bricks or otherwise, a false flooring of laths or thin board. Pour in 2 or 3 inches of water, place the articles to be disinfected above the false flooring, put on the cover and steam one hour after the water begins to boil, keeping the water briskly boiling all the time. To insure certainty of success there must be a brisk fire and the steam must be kept steaming through the articles all the time. After the steaming, carry the boiler into the open air and throw the things over a line to dry. In every town and city a portable steam disinfector should be available. Clothing can also be disinfected by soaking it twenty-four hours in solution of 6 or 7. Then rinse thoroughly.

(*B*) *Bedding.*—Disinfect sheets, blankets, pillowcases, quilts, comforts, and spreads, as under (*A*). Pillows and feather beds are preferably disinfected with steam. They need not be ripped—the steam will penetrate. Empty straw beds, burn straw, and disinfect tick with steam as under (*A*). Burn cheap mattresses. A mattress worth the trouble may be disinfected with formaldehyde as follows: Make a tight box large enough to contain it; render it air-tight by pasting up all cracks and corners with stout, firm paper. Place the mattress in it and sprinkle or spray it with at least 4 ounces (1 gill) of formalin; put on the cover quickly, paste it up. Leave the mattress twenty-four hours. Or a mattress may be disinfected by spraying it with formalin and quickly and tightly wrapping it in large rubber blankets. Feather beds and pillows may be disinfected with formalin as is advised for mattresses.

(*C*) *Rugs and carpets.*—Burn old ones and all that can not be surely disinfected. Steam disinfection is the surest. When that is impracticable formaldehyde in concentrated doses, as for mattresses, may be used for valuable carpets or rugs.

(*D*) *Upholstered furniture.*—If the room can be disinfected with formaldehyde, spray or sprinkle the upholstered part with solution 7, just before the room disinfection, and leave in place. If formaldehyde gas is not available, spray or wash thoroughly with solution 7 or 6, then expose to the action of direct sunshine three or four days—the longer the better.

(*E*) *Rooms.*—Avoid raising a dust. If the removal of a carpet leaves dust on the floor, remove it after sprinkling wet sawdust or with damp broom or damp cloths. With a damp cloth remove dust from furniture and other surfaces. Boil all cloths thus used. If formaldehyde disinfection is available for the room, wash in solution 7 all surfaces of walls or furniture that may have been soiled with sputum. Wash or spray the floor with solution 7, letting the solution soak into the cracks well. Then fumigate with formaldehyde, letting the stripped furniture remain. If formaldehyde is not available, wash very carefully in solution 6 or 7 floors and all surfaces where exposed to the danger of soiling with sputum. Complete the disinfection of the room with liquid disinfectants, repeating the washing, the interval between the two washings not necessarily exceeding half an hour. For the disinfection of rooms with formaldehyde, the new vaporizer devised by Professor Robinson, in which formaldehyde solution is used, is recommended by the State board as a simple, compact, and efficient piece of apparatus. It vaporizes solution of formaldehyde instead of wood alcohol. At least half a pint of formaldehyde solution should be used for each 1,000 cubic feet of space. Keep the room closed at least eight hours. In preparing for formaldehyde disinfection, the room must be made as tight as possible by closing the mouths of chimneys, other ventilating openings, chinking, or pasting cracks, etc.

Solution 6: Corrosive sublimate, 1 dram; water, 1 gallon; mix and dissolve. Label "Poison." This is approximately a 1:1,000 solution. Its use should always be under the direction of some intelligent and careful person. This is not trustworthy as a disinfectant of fresh sputum. Destroys metals and gilding. Must be mixed in wood, glass, or earthenware.

Solution 7: Solution of formaldehyde (formalin), 6 ounces; water, 1 gallon; mix. This mixture contains a little less than 2 per cent of formaldehyde. (The Sanitary Record, London, England, May 25, 1900.)

There should be some adequate legislation in regard to the transportation through the Territory of dead bodies. The board has had valuable assistance from the New

Mexico Medical Society, which is composed of about 95 per cent of the licensed physicians in the Territory.

The restrictions set on the practice of medicine in this Territory have been carried out by the board with the result that the medical profession to-day contains men of professional ability and high integrity that will compare favorably with any of the Eastern States. The standard for the practice of medicine here is as high as any in the United States, and, although we are only a Territory, "quackery" is almost unknown.

The high standard of ethics of the American Medical Association is rigidly enforced, and the ranks of the medical profession are much cleaner than some of the States with older medical laws.

The next legislature should pass such laws as to make the New Mexico Territorial board of health a board in fact as well as name. Vital statistics should be kept, so that the world should know what a life-giving climate New Mexico is favored with.

Respectfully submitted.

T. P. Martin, M. D., *Secretary.*

Hon. M. A. Otero,
Governor of New Mexico.

BOARD OF PHARMACY.

Silver City, N. Mex., *December 1, 1899.*

Sir: I have the honor to submit herewith the tenth annual report of the New Mexico board of pharmacy to December 1, 1899.

Since my last report December 1, 1898, the board has held two meetings, one at Santa Fe, March 6 and 7, 1899, at which 4 applicants were examined, but 1 of whom was successful. Minor certificates were issued to 2.

A meeting was held at Las Vegas on October 4 and 5, 1899, at which 1 applicant appeared for examination, who was unsuccessful.

Other routine business transacted and various reports submitted, showing that the conditions were fairly satisfactory and that the provisions of the pharmacy law are being properly observed. A few instances of violation have come to the notice of the board, and due diligence has been exercised toward a satisfactory adjustment of the same. Lack of sufficient funds has always been a menace to the proper investigation of and adjustment of irregularities. However, in comparing the conditions of pharmacy in New Mexico with those existing in other States we find we compare very favorably in pharmaceutical proficiency and professional standing.

Appended hereto is a list of the registered pharmacists and minor pharmacists on our register at this date, also financial statement of secretary and treasurer.

Respectfully submitted.

W. C. Porterfield,
Secretary and Treasurer.

Hon. Miguel A. Otero,
Governor of New Mexico.

Financial statement.

1898.			
Dec.	1.	By balance on hand at last report	$153.40
Dec.	1.	By 74 renewal fees	148.00
Dec.	1.	By 20 examination fees	100.00
Dec.	1.	By amount received for advertisement in report	58.00
Dec.	1.	By 4 registration fees	8.00
			467.40

Financial statement—Continued.

DISBURSED.

Date	Item	Amount
1899.		
Jan. 1.	To 1 M envelopes printed	$5.00
Jan. 1.	To postage	3.00
Jan. 5.	To postage	1.00
Jan. 12.	To postage	2.00
Jan. 20.	To postage	1.00
Jan. 22.	To postal cards	1.50
Jan. 24.	To printing report, paid J. E. Sheridan	55.00
Jan. 24.	To printing envelopes	2.25
Feb. 7.	To postage	1.00
Mar. 4.	To stationery	.50
Mar. 15.	To printing cards, notices	2.00
Mar. 4.	To B. Ruppe, mileage, per diem, and postage	42.30
Mar. 4.	To A. J. Fischer, mileage, postage, and per diem	15.00
Mar. 4.	To E. G. Murphy, mileage, per diem, and postage	22.50
Mar. 4.	To W. C. Porterfield, mileage and per diem	50.50
Apr. 1.	To postage	3.00
May 1.	To postage	1.50
May 24.	To postage	1.00
July 1.	To postage	1.50
July 20.	To postage	1.00
July 25.	To postage	2.00
Oct. 5.	To B. Ruppe, mileage, per diem, and postage	24.60
Oct. 5.	To A. J. Fischer, mileage, per diem, and postage	20.90
Oct. 5.	To P. Moreno, mileage and per diem	44.40
Oct. 5.	To E. G. Murphy, mileage, per diem, and postage	10.00
Oct. 5.	To W. C. Porterfield, mileage and per diem	50.90
Nov. 1.	To printing receipt blanks, paid Walton	6.00
Nov. 17.	To postage	2.00
		373.35
Dec. 1, 1899.	Balance on hand	94.05

Summary of register.

Number of registered pharmacists at last report		88
Number of minor pharmacists at last report		13
Total		101
Registered since last report, registered pharmacists	27	
Registered since last report, minor certificates	5	
		32
Total		133
Canceled, all causes		45
Total registered		88

Registered pharmacists in New Mexico on December 1, 1899.

Name.	Residence.
Abraham, E. G	Albuquerque.
Bowman, Alex	Farmington.
Becker, John	Belen.
Borrowdale, M. W	Magdalena.
Byron, J. P	Deming.
Berry, J. C	Albuquerque.
Bohn, Carl H	Philadelphia.
Bird, Carl M	Roswell.
Brewer, Thos. B	Santa Fe.
Collins, Albert	Do.
Cassel, E. L	Deming.
Christensen, Chris	Albuquerque.
Condit, E. G	Aztec.
Dawson, W. B	Kingston.
Driscol, Wm	Socorro.
Davis, Bert	Hillsboro.
Fischer, A. J	Santa Fe.
Forsyth, J. R	Albuquerque.
Goodall, K. D	East Las Vegas.
Goebe, Oscar	Belen.
Grundle, M. R	Raton.
Griffith, H. M	Rawlins, Wyo.
Howell, A. E	Socorro.
Howard, John	Mogollon.
Hinch, F. E	Gallup.
Hernandes, M. P	Juarez, Mexico.
Huber, Samuel	Raton.
Harrington, Fred	Roswell.
Hilton, Emily K	Socorro.
Hodges, J. R	Roswell.
Hunt, R. A	Carlsbad.
Heiberger, M. G	Grundy Center, Iowa.
Ireland, A. C	Santa Fe.
Irvine, J. E	Deming.
Jackson, W. L	Silver City.
Kinnear, Jas. A	Deming.
Kremis, J. A	Springer.
Kremis, W. H	San Marcial.
Kinsinger, Ed. D	Roswell.
Lane, A. G	White Oaks.
Laudenslager, A. E	Albuquerque.
Lane, H. B	Las Cruces.
Lane, B. E	Do.
Lester, G. E	Las Vegas.
Lane, David W	Albuquerque.
Murphey, E. G	Las Vegas.
Malette, J. R	Albuquerque.
Miller, C. C	Hillsboro.
Moreno, P	Las Cruces.
McLean, J. W	Worcester, Mass.
Mann, W. C	Norristown, Pa.
McEwen, J. S	Carlsbad.
Myhre, O. G	Silver City.
Miller, C. J	Albuquerque.
Mann, Robt	Do.
Mead, J. K	Bay City, Mich.
Matthews, D. J	Albuquerque.
Nowers, L. E	Hillsboro.
Niemoeller, E. H	Albuquerque.
Orton, L. S	Taos.
O'Reilly, J. H	Albuquerque.
Porterfield, W. C	Silver City.
Porterfield, M. W	Do.
Prewitt, F. E	Farmington.
Pring, E. J	Catskill.
Pennewill, J. W	Silver City.
Priest, E. C	Rincon.
Payton, B. D. W	Eddy.
Paden, M. W	White Oaks.
Potter, H. L	Carlsbad.
Packart, H. M	Albuquerque.
Ruppe, B	Do.
Richards, Joseph	Cerrillos.
Reilling, A. H	Silver City.
Robinson, L. B	Pinos Altos.
Ross, E. H	Albuquerque.
Roland, F. C	Hillsboro.
Schroeder, J. B	Raton.
Salisbury, H. L	Do.
Small, W. H	Lordsburg.
Schaefer, O. G	East Las Vegas.
Seggerstrom, E. J	Catskill.
Schmalmaack, F. W	Albuquerque.
Simpson, J. H	Carlsbad.
Smith, Hugo Geo. A	Albuquerque.
Sanders, Isidor	Trinidad, Colo.
Stolte, Geo. W	Carlsbad.
Tomlinson, J. A	La Luz.
Thomas, J. C	Cerrillos.
Van Petten, R. J	East Las Vegas.
Van Petten, H. S	Do.
Wegman, Martin	Chloride.
Winters, D. C	Las Vegas.
Walton, W. Y	Albuquerque.
Williams, Geo B	Do.
Wright, F. B	Do.
Waldschmidt, C. H	Carlsbad.
White, M. M	Santa Fe.
Warring, T. A	Gallup.
Wolfe, H. A	Las Vegas.
Warren, E. W	Alamogordo.
MINOR CERTIFICATES.	
Butchofsky, L. M	Silver City.
Johnson, J. V	Chama.
Heller, R. F	Cabezon.
Smith, W. C	Upper Penasco.
Finch, A. L	Bland.
Laing, Lester	Silver City.
Anderson, R. C	Central.
Delgado, Pablo	Santa Fe.
Ellison, J. C	East Las Vegas.
McClintock, A	Rincon.
Smith, F. C	Albuquerque.

DUTIES OF THE SECRETARY.

It shall be the duty of the secretary to attend all meetings of the board and make a full record of the proceedings of the same; he shall keep a book of registration in which shall be entered the names and places of business of all persons registering under the pharmacy law; also specify such facts as said persons shall claim to justify their registration. The secretary shall prepare all certificates ordered by the board, and shall notify each member by mail of the meetings of the board, and do such other clerical work as the board may direct; he shall give such bond, to be approved by the board, as the board may from time to time direct.

He shall keep a full account of all moneys received and disbursed, and specify for what purposes, and make a full report of receipts and disbursements and amount of cash on hand at each regular meeting or whenever it is demanded by the board.

MEETINGS.

The regular meetings of the board shall be held semi-annually, as a majority of the board may direct, and at such place as they shall elect. Upon the written application of three members of the board the president shall call special meetings of the board, and shall cause notice thereof to be given to each member at least seven days in advance of such meeting.

STANDING COMMITTEES.

The committee on complaints and grievances: The duties of the committee on complaints and grievances shall be to carefully examine into all complaints and grievances made to the board pertaining to the violation of the pharmacy law, except adulterations and the sale of poisons. All such complaints and grievances shall be referred to said committee and a written report submitted thereon.

COMMITTEE ON ADULTERATIONS AND POISONS.

The duties of the committee on adulterations and poisons shall be to carefully examine into all complaints made to the board pertaining to violations of the pharmacy law in regard to adulterations and the sale of poisons; and all such complaints shall be referred to said committee and a written report made thereon before an analyst or chemist can be employed or any prosecution shall be ordered by the board.

COMMITTEE ON AUDITING AND FINANCE.

The duties of the committee on auditing and finance shall be to carefully examine into all claims presented to the board for payment, and to report upon the correctness and allowance of the same; to examine the books and accounts of the secretary and treasurer, and make recommendations as to the manner and form in which such books and accounts shall be kept; to report at the regular meetings of the board upon the condition of the books and accounts of the secretary and treasurer, the amount of receipts and expenditures for the fiscal year, and the amount of cash on hand.

RULES.

Rule 1.—Any member of the board may, upon presentation of credentials or other satisfactory evidence of capability, grant a temporary certificate, which shall expire at the next meeting of the board. It shall also be the duty of any member of the board, in his respective district, to see that all practicing pharmacists renew their annual certificates; and that they have a general supervision over their districts, respectively, and shall report all infractions of the law to the board and their action taken in behalf of the same.

Rule 2.—Registered pharmacists who change their location must report the same within ten days, giving their present address to the secretary.

Rule 3.—Proprietors of pharmacies not registered themselves, who conduct pharmacies under charge of a registered pharmacist, must report any change they may make in said registered pharmacist within ten days after such change occurs.

Rule 4.—This board will recognize certificates issued by other State boards which have been granted by examination wherein a grade of at least 75 per cent has been attained and a practical experience of at least three years is required. A certificate from the secretary of such board to that effect must accompany the application.

Rule 5.—This board recognizes diplomas from an incorporated college or school of pharmacy that requires a practical experience in pharmacy of not less than three years before granting a diploma.

NEW MEXICO PHARMACY LAW.

[Compilation of 1897.]

SEC. 3717. That from and after the passage of this act it shall be unlawful for any person not a registered pharmacist in the meaning of this act to conduct any drug store, pharmacy, apothecary shop, or store for the purpose of retailing, compounding, or dispensing medicines in the Territory of New Mexico, except as hereinafter provided.

SEC. 3718. That it shall be unlawful for the proprietor of any such store or pharmacy to allow any person except a registered pharmacist to compound or dispense the prescriptions of physicians except as an aid to and under the supervision of a registered pharmacist. Any person violating the provisions of this section shall be deemed guilty of a misdemeanor, and on conviction shall be liable to a fine of not less than five nor more than one hundred dollars.

SEC. 3719. The governor shall appoint five persons, all of whom shall have been residents of the Territory for three or more years and of at least eight years' practiced experience as druggists or phamacists, who shall be known and styled the board of pharmacy for the Territory of New Mexico, one of whom shall hold the office for five years; one for four years; one for three years; one for two years; one for one year in the first instance, and thereafter the governor shall annually appoint one person to serve as a member of the board for five years. The persons so appointed shall constitute the board of pharmacy, and shall hold the office for the term for which they were appointed, or until their successors are duly appointed and qualified. They, the said board, and each of them, shall, within ten days after their appointment, or being apprised of the same, take and subscribe the usual official oath before a properly qualified officer of the county in which they reside. The said board shall organize within thirty days from and after their appointment and annually thereafter by the election of a president and secretary. A majority of the board shall constitute a quorum for the transaction of business. Said board shall have the power to make by-laws and all necessary regulations for the proper fulfillment of their duties under this act without expense to the Territory. Any vacancy occurring in said board shall be filled by an appointment by the governor for the unexpired term.

SEC. 3720. The board of pharmacy shall register in a suitable book, a duplicate of which shall be kept in the office of the secretary of the Territory, the names and places of residence of all persons to whom they issue certificates and the dates thereof. It shall be the duty of said board of pharmacy to register, without examination, as registered pharmacists, all druggists and pharmacists who are engaged in business in the Territory of New Mexico at the passage of this act, as owners, principals, or clerks of stores for retailing, compounding, or dispensing drugs, medicines, or chemicals for medical use, or for compounding and dispensing physicians' prescriptions: *Provided*, No druggist's clerk shall be so registered unless he be eighteen years of age and has been engaged in some store or pharmacy where physicians' prescriptions were compounded and dispensed, for the space of three years next preceding the passage of this act. In case of the failure or neglect of any person to apply for registration within sixty days after the organization of the said board of pharmacy, he shall have forfeited the privilege of registering without examination, and shall only be registered after examination as set forth in section three thousand seven hundred and twenty-one.

SEC. 3721. That the said board of pharmacy shall upon application, and at such time and place and in such manner as they may determine, examine each and every person who shall desire to conduct the business of selling at retail, compounding and dispensing drugs, medicines, or chemicals for medical use, or compounding or dispensing physicians' prescriptions as pharmacists in the Territory of New Mexico, and if a majority of said board shall be satisfied that said person is competent and fully qualified to conduct said business of compounding or dispensing drugs, medicines, or chemicals for medical use, or to compound and dispense physicians' prescriptions, they shall enter the name of such person, as a registered pharmacist, in the book provided for in section three thousand seven hundred and twenty: *Provided*, That all graduates in pharmacy having a diploma from an incorporated college or school of pharmacy that requires a practical experience in pharmacy of not less than three years before granting a diploma may, in the discretion of the board, be entitled to have their names registered as registered pharmacists by said board without examination. The board of pharmacy shall issue an appropriate certificate to each person registered, which certificate must be conspicuously displayed in every store or place described in this section. Said certificate must be renewed twelve months after each date of issue.

SEC. 3722. The board of pharmacy shall be entitled to demand and receive from each person whom they register and furnish a certificate as a registered pharmacist, without examination, the sum of two dollars, and for each and every person whom they examine the sum of five dollars, which shall be in full for all services. In case the examination of said person shall prove defective and unsatisfactory to the board and he be declined registration, he shall be permitted to present himself for reexamination within twelve months thereafter and no charge shall be made for such examination.

SEC. 3723. The board of pharmacy shall hold semiannual sessions at such times and places as the board may determine; other sessions of the board may also be held whenever and wherever a quorum of the board is present.

In the interim of the sessions of the board and upon satisfactory evidence of a fitness of an applicant, any one member of the board may, in his discretion, issue a temporary certificate, which shall authorize and empower the holder to conduct a drug store or pharmacy as set forth in section three thousand seven hundred and twenty-one. Such temporary certificate must be signed by one member, and shall expire and terminate at the date of the next succeeding semiannual session of the board after the granting thereof. No fee shall be demanded for the temporary certificate.

SEC. 3724. Every owner of a drug store in the Territory of New Mexico shall be held responsible for the quality of all drugs, chemicals, and medicines he may sell or dispense, with the exceptions of those sold in the original packages of the manufacturer or wholesale dealer, and also those known as proprietary medicines. And should he knowingly, intentionally, and fraudulently adulterate or cause to be adulterated such drugs, chemicals, or medical preparations, he shall be deemed guilty of misdemeanor, and upon conviction thereof his license as a registered pharmacist shall be thereby revoked, and in addition thereto be liable to a penalty not exceeding five hundred dollars.

SEC. 3725. Any person who shall procure or attempt to procure registration for himself or for another, under the act, by making or causing to be made false representations, shall be deemed guilty of a misdemeanor, and shall, upon conviction thereof, be liable to a penalty of not less than five and not exceeding one hundred dollars, and his name, together with the name of the person so registered, shall be stricken from the register.

SEC. 3726. Any person not a registered pharmacist as provided in this act who shall conduct a store, or a pharmacy, or place for retailing, compounding, or dispensing drugs, medicines, or chemicals for medical use, or for compounding or dispensing physicians' prescriptions in the Territory of New Mexico, or who shall take, use, or exhibit the title of registered pharmacist, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, be liable to a penalty of not less than five nor more than one hundred dollars: *Provided further*, This act shall not apply to physicians putting up their own prescriptions, nor to the sale of patent proprietary medicines, nor to the sale of those articles commonly known as grocers' drugs, except those articles that are denominated poisons under the law known as the New Mexico poison law; nor to any regularly licensed physician of the Territory of New Mexico engaged in the drug business in towns or cities situated twenty miles or more from a regular licensed pharmacist engaged in the drug business.

SEC. 3727. If any registered pharmacist shall go out of the drug business, and remain out for a period of twelve months, his certificate as registered pharmacist shall thereupon expire.

SEC. 3728. All suits for recovery of the several penalties prescribed in this act shall be prosecuted in the name of the Territory of New Mexico, in any court having jurisdiction, and it shall be the duty of the prosecuting attorney of the county where such offense is committed to prosecute all persons violating the provisions of this act upon proper complaint being made. All penalties collected under the provisions of this act shall inure to the expense fund of the board which may occur.

SEC. 3729. It shall be the duty of the said board to grant to persons or merchants in towns or camps having no drug store, minor certificates without charge, as they may deem proper, to vend such medicines, compounds, or chemicals as are required by the general public: *Provided*, That this law is not to be so construed as to prevent ranchmen or miners not within reach of a store or place where drugs are sold from dispensing medicines to their families or employés: *Provided further*, That it shall be the duty of the secretary of said board to render an accurate annual statement to the governor of the Territory of all moneys received and expended by said board during each year, and he shall also report upon the general condition of pharmacy throughout the Territory.

SEC. 3730. The meetings of the pharmacy board shall be opened to registered pharmacists who shall be permitted to be present at the examination of applicants for registration.

SEC. 3731. Any member of the board of pharmacy who shall violate any of the provisions of this act, or who shall neglect or refuse to report any of the violations of the provisions of this act that may be within his knowledge, within ten days of the time said violation comes to his knowledge, shall be removed from office by the governor upon such showing as may be deemed satisfactory by the executive, and such vacancies shall be filled by the governor as now provided by law.

POISON LAW.

SEC. 1259. Every apothecary, druggist, or other person who shall sell and deliver any arsenic, corrosive sublimate, prussic acid, or any other violent poison, without having the word "poison," and the true name written thereof, written or printed in

Spanish and English, upon a label put upon the vial, box, or package that contains the same, shall be punished by a fine not exceeding one hundred dollars.

SEC. 1260. That hereafter it shall be unlawful for any person not a registered pharmacist to sell or dispense any poisons enumerated in Schedules A and B, except as approved by section fourteen of New Mexico pharmacy law, approved February 15, 1899. (Section 3726, Compiled Laws of 1897, quoted hereinbefore in pharmacy law.)

Schedule A.—Arsenic, mercury, strychnia, and their preparations of salts, acetate of lead, tartar emetic, cyanide of potassium, hydrocyanic acid, and all other poisonous vegetable alkaloids and their salts, essential oil of bitter almonds, opium and its preparations, except paregoric and such other preparations of opium containing less than two grains to the ounce.

Schedule B.—Aconite, belladonna, coca, colchicum, conium, nux vomica, henbane, savin, ergot, cotton root, cantharides, creosote, digitalis and their pharmaceutical preparations and alkaloids, croton oil, chloroform, chloral hydrate, sulphate of zinc, mineral acids, carbolic acid, and oxalic acid, without distinctly labeling the box, vessel, or paper in which the said poison is contained with the name of the article, the word "poison," and the name and place of business of the seller; nor shall it be lawful for any person to sell or deliver any poison enumerated in Schedules A and B unless, upon due inquiry, it be found that the purchaser is aware of its poisonous character, and represents that it shall be used for a legitimate purpose; nor shall it be lawful for any registered pharmacists to sell or dispense any poisons enumerated in Schedules A and B without, before delivering the same to the purchaser, causing an entry to be made in a book kept for that purpose, stating the date of sale, the name and address of the purchaser, the name of the poison sold, the purpose for which it is represented by the purchaser to be required, and the name of the dispenser; such book to be always open for inspection by the proper authorities, and to be preserved for at least four years. The provisions of this act shall not apply to the dispensing of poisons in not unusual quantities or doses, upon the prescriptions of practitioners of medicine: *Provided*, Nothing in this act shall be so construed as to prevent the sale of such poisonous articles as are directly used in mining or for the reduction or concentration of ores.

SEC. 1261. Any person violating the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction shall be fined in a sum not exceeding one hundred dollars, or by imprisonment in the county jail for not more than six months, or both, in the discretion of the court.

SEC. 1262. All fines recovered under the provisions of this act shall be paid to the treasurer of the Territorial board of pharmacy.

SEC. 1263. It shall be unlawful for any person to keep or maintain a place for the purpose of furnishing opium to others, or what is commonly known as a hop joint or opium joint: *Provided, however*, That the provisions of this section shall not in any wise apply to druggists who may dispense or sell the same upon the prescription of a physician.

SEC. 1264. Any person violating the provisions of the preceding section shall be deemed guilty of a misdemeanor, and upon conviction thereof before a justice of the peace, or the district court, or any competent tribunal, shall be fined in any sum not less than twenty-five dollars nor more than two hundred and fifty dollars, or he shall be sentenced to imprisonment at hard labor in the county jail for a term of not less than one nor more than six months, or both said fine and imprisonment, in the discretion of the court or jury trying the case.

SEC. 1265. All fines imposed under the provisions of this act, one half shall go to the prosecuting witness and the other half to the treasurer for the benefit of the school district wherein the offense was committed.

NEW MEXICO BOARD OF DENTAL EXAMINERS.

SANTA FE, N. MEX., *September 10, 1900.*

SIR: In accordance with chapter 60, section 10, general laws of New Mexico for 1893, we have the honor to submit the sixth annual report of the New Mexico board of dental examiners.

A special meeting of the board was held at Santa Fe on May 10, 1899, for the purpose of closing up the business of the board appointed by Governor Thornton on February 21, 1895.

There were present F. E. Olney, L. H. Chamberlin, and D. W. Manley. Drs. White and Bearup were unable to attend.

There were 13 applicants for permanent certificates, all graduates of recognized dental colleges. Of this number 9 were granted permanent certificates; 4 were refused certificates on account of removal from the Territory before the meeting of the board.

In regard to those applicants refused certificates it was—

"*Resolved*, That all applicants who have secured a temporary certificate and removed from the Territory before the meeting of the board and the issuance of a permanent certificate be granted a certificate upon their return without further cost."

The accounts of the treasurer were examined, found correct, and approved.

No violation of the law was reported during the year.

Since the law went into effect in 1893, 63 permanent certificates have been granted, 47 temporary certificates, and 5 examinations have been given, 3 passing successfully and 2 failing.

RECEIPTS.

Received from 13 applications for registration	$65.00
Cash with treasurer	58.25
	123.25

EXPENDITURES.

L. H. Chamberlin, traveling expenses	20.00
F. E. Olney, traveling expenses	20.00
W. H. White, traveling expenses	20.00
A. A. Bearup, traveling expenses	20.00
D. W. Manley, traveling expenses	20.00
Typewriting	1.00
Cash with treasurer	22.25
	123.25

There being no further business, and the term of office of the present board having expired and its successor duly appointed, the board adjourned sine die.

The members of the new board, appointed by Governor Otero in 1899, after qualifying before the secretary of the Territory, met and organized by electing L. H. Chamberlin president and D. W. Manley secretary; B. M. Williams, W. H. White, A. A. Bearup, members.

There being no other business, adjourned to meet at the call of the president. The annual meeting for 1900 has not yet been called.

D. W. Manley, *Secretary*.

Hon. M. A. Otero, *Governor of New Mexico.*

CLIMATE AND CROP REPORT.

Santa Fe, *August 9, 1900.*

Sir: I have the honor to forward, herewith inclosed, my report of the New Mexico climate and crop section for the fiscal year ending June 30, 1900.

Very respectfully,

R. M. Hardinge, *Section Director*.

The Governor of New Mexico,
Capitol, Santa Fe, N. Mex.

REPORT OF THE NEW MEXICO SECTION OF THE CLIMATE AND CROP SERVICE OF THE WEATHER BUREAU, UNITED STATES DEPARTMENT OF AGRICULTURE (COOPERATING WITH THE NEW MEXICO WEATHER SERVICE), FOR FISCAL YEAR ENDING JUNE 30, 1900.

[R. M. Harding, section director, Santa Fe, N. Mex.]

The scheme of organization of the section has not been changed during the year. The annual Territorial appropriation of $700, passed by the assembly of February, 1899, for necessary printing in connection with the distribution of the several reports of the section, covers such expenses up to and including December, 1900. All other expenses, as equipment of stations, stationery, salaries, etc., are borne by the national service.

During the year 9 stations have been established, including reports from 2 stations of the Southern Pacific Railway, and 4 have been discontinued. At the close of the year 43 stations were reporting. Nine stations have been equipped with standard instrument shelters, making 24 stations of the section thus equipped. The vast territory of western Socorro County is now represented in the publications of the section by reports from Horse Springs, and full reports are being received from the medical

GOLD MINE, SIERRA COUNTY.

officers in command at the Government sanitariums at Fort Bayard and Fort Stanton. The Hon. Antonio Joseph, Ojo Caliente, has been furnished with a full station equipment, but at the end of the year Taos County is still unrepresented by reports. The summer resort of Cloudcroft, in the Sacramento Mountains, also has been equipped with instruments and a shelter, but as yet reports from this station have not begun.

There have been printed and distributed during the year 400 bulletins of information concerning the amount of snow on the ground in the vicinity of head waters of streams, 10,000 weekly climate and crop bulletins, 6,000 monthly reports of observations, and 800 annual summaries of yearly observations. The snow-fall and climate and crop bulletins are widely copied in the press of the Territory, and frequently by outside papers. It is estimated that the information given in the bulletins is by means of the Territorial press made to reach 20,000 readers weekly. Of the bulletins proper the majority of the copies printed are distributed outside of the Territory. The monthly reports and annual summary of the section are neatly printed quarto pamphlets coordinating the daily observations of the several stations and containing pertinent climatological discussions, and are distributed to applicants in all sections of the country.

The beneficent influence of our climate upon certain diseases is attracting increased attention, through the indorsement of leading physicians and the recognition given it by the Government in the establishment of army and navy sanitariums at Fort Bayard and Fort Stanton. It is gratifying to note the largely increased number of applications to the central office for climatic data from scientists, tourists, health seekers, and prospective settlers.

CROP REVIEW, SEASON OF 1899.

General weather conditions.—The crop season of 1899 was somewhat of a failure in many respects, owing to the late frosts which killed much of the fruit; the high, drying winds, and cool nights of the spring, which reduced the yield of lambs; and to the lack of good rains from the first part of April to the last half of June and during the month of August. The prevalence of high, dry winds and absence of warm rains in the spring delayed planting and prevented planted seeds from germinating. In central and northern sections many fields of wheat, corn, and oats which should have been planted early in May were not seeded until after the warm showers of the latter part of June. The unusually heavy snows in the mountains during the winter promised a full volume of water in rivers and streams for spring irrigation—and, indeed, precautions were taken along the lower Rio Grande for unusual freshets—but the continued and extremely dry winds of March, April, and May rapidly evaporated the deep snow in the mountains and caused streams to carry considerably less than their usual volume. This fact, combined with the absence of spring rains, threatened a scarcity of irrigation water early in the season, especially in the central and southern Rio Grande Valley. Before the June rains came many ditches in both these and other sections were without water. Stock came through the winter in fair condition and began a rapid improvement on the good grazing started by the rains and snows of the last week of March and the first week of April, but as the season advanced the grass dried up under the influence of the desiccating winds, and stock had to be driven long distances to water. By the middle of June food and water for stock were so scarce that stockmen were considerably alarmed at the prospect. The warm showers of the latter part of June and the good, soaking rains during July reversed the unfavorable condition which had obtained up to this time, and by the end of July crops in general had so far improved as to promise a very satisfactory termination of the season that had started so unfavorably. August, however, proved a hot, dry month, with unusually high, dry winds during the last half, conditions which offset in a large degree the favorable weather of July. At the beginning of the month water for irrigation purposes was sufficient, but toward the close the volume of rivers and streams had greatly lessened and many ditches of central and eastern sections were dry. Outside water holes again ran dry and, as the grass was fast drying up, there was threatened a scarcity of fall and winter food for stock on the ranges. The dry weather also favored the increase of injurious insects in gardens; in the southwest some fields of beans were entirely destroyed. September was decidedly more favorable to all interests, having a temperature slightly above normal and bringing good, soaking rains over the greater part of the Territory, and especially to northern counties, where late crops were still in a condition to receive benefit from favorable weather. The rains which came during the first half of the month were of benefit to late crops, as late alfalfa and hay, beans, and other garden truck, and were of immense value to stock interests in filling outside water holes and practically assuring good fall and winter grazing on the ranges.

Progress of crops.—March was very dry until the last week, when several good rains and snows put the soil in good condition for working and started vegetation. Frost was out of the ground as far north as Santa Fe by the 15th; in southern counties irrigation ditches were opened by the 20th. Much of the spring wheat and some oats were sown during the last decade. By the last of the month early fruits, as peaches, plums, and apricots, were in bloom in southern valleys, but were greatly damaged by a frost on the 27th–28th. Toward the end of the month it became apparent that central vineyards had been greatly injured by the severe freeze of March 17. Snow lay from 5 to 10 feet deep on the northern mountains at the close of the month, which was thought at the time to insure sufficient water for the streams for some months.

The cool nights and high, dry winds of the latter part of April checked the growth of vegetation, and the frequent frosts of the month, especially on the 6th, 7th, and 30th, further lessened the fruit prospects of central and southern districts, apricots, peaches, and grapes suffering most. Northern orchards, being later in developing, escaped the frosts with comparatively slight injury, but it afterwards became apparent that many of the peach trees of the San Juan country had been winterkilled. In southern sections alfalfa had a good start early in the month, and gardening, sowing oats and spring wheat, and new alfalfa fields, were nearing completion by the 15th; and by the close of the month some alfalfa was in flower and most of the corn had been planted. In northern counties much of the corn had been planted by the end of the month, gardens made, and oats and wheat sown. Streams carried less than their usual volume, but were still sufficient. On account of the cool nights and lack of rains the lambing season began under adverse conditions and range stock made slow improvement.

The weather continued dry and windy during May, with cool nights and killing frosts in localities on the 3d, 17th, 20th, and 22d. Some claimed that it was the driest and coolest May on record. Excepting in the extreme southern valleys, fruits, gardens, alfalfa, and young corn sustained great injury from the frosts. The precipitation occurred as light showers—generally on the 8th—over northern and northeastern sections, but over the greater part of the Territory there was a total absence of rainfall. Crop growth was behindhand at the beginning of the month, and the unfavorable conditions tended still further to make a backward season. Toward the close of the month the conditions were quite serious for stockmen, as outside watering places generally were without water, and grass on the ranges was short and dried up. Spring seeding was carried on under rather favorable conditions during the first part, but as the month advanced much of the planting and seeding was suspended, awaiting more favorable weather. In southern sections the first cutting of alfalfa was done about the 15th. During the last decade several thousand acres of sugar beets were planted in the lower Pecos Valley. Owing to the cool nights and lack of rains the lambing season was estimated to be only about 50 per cent of the average yield. Stock improved so slowly that the outlook was very discouraging. Irrigation water became very scarce in all sections toward the close of the month, excepting the lower Pecos Valley and the San Juan country.

The first half of June was dry and windy, but the last half warm and showery. A frost on the 2d slightly nipped some transplanted tomato and cabbage plants in the southwestern valleys. Excepting in central sections, conditions began to improve rapidly after the 15th. Planting, which had been suspended in early May, was finished during the latter part of this month. The first cutting of alfalfa was generally secured by the 10th in southern sections, but owing to the lack of rain the yield was far below the average. The second crop, however, made a much better showing. Corn planting generally was finished by the 10th, excepting in central sections, where the absence of moisture rendered it impracticable to put in crops. Stock interests suffered greatly during the month, and it was not until the last week that conditions began to improve and grass on the ranges to grow. By the 25th peaches were in the markets of the lower Pecos Valley, and peaches and plums were getting ripe in the lower Rio Grande Valley.

The "rainy season" set in about the 7th of July, and the rapid improvement thereafter in crops promised compensation in a great measure for the disastrous drought of the earlier part of the season. Irrigation ditches were again running full. Grass on the ranges began a luxuriant growth, and by the close of the month stock had improved wonderfully and generally were in excellent condition. As a rule the rains were steady and soaking, but there were several so-called "cloudbursts," which caused considerable local damage to crops and railway property. Harvesting wheat and the second growth of alfalfa were well begun in central localities by the 4th, but owing to the delays caused by the rains these harvests were not finished until the latter part of the month, and both crops sustained some loss. Corn grew rapidly, and during July promised to make up for its previous backward growth. Fruits ripened under more favorable conditions, and, although of a small yield, were generally of a good quality, excepting that the apples were unusually wormy in many orchards. Southern melons came into the markets during the last decade.

With the exception of the extreme northwestern counties, August proved a very warm and dry month, with unusually high dry winds. A frost on the 20th slightly nipped some melon and pumpkin vines in northern sections. On the 3d a severe hailstorm in San Juan County caused some local damage to gardens. Harvesting wheat, barley, oats, and the second and third growths of alfalfa was well under way in central and northern sections by the 20th, and the crops were secured under favorable conditions. The third cutting of alfalfa was, as a rule, not as good as the second. In the north, and in the better watered valleys, corn continued a fair growth, but owing to the continued drought many fields in central sections, and on unirrigated lands, ripened prematurely, and promised to be fit for nothing but fodder. The sugar beets of the lower Pecos Valley generally were "laid by" by the 20th. Northern melons of a very good quality came into the markets during the last decade. Peaches and plums of San Juan and Rio Arriba counties were marketed by the 25th; peaches were scarce but of good quality, while plums were both excellent and abundant. The vineyards of Bernalillo County had recovered beyond expectation from the killing frost of March 17, and grapes, although a small yield, were maturing nicely.

The rains of September were divided into two distinct periods, from the 7th to 10th, and from the 13th to the 16th, inclusive. The thunderstorms of the 13th, 15th, and 16th, over northern sections, were accompanied generally by hail, which in some localities proved injurious to fruit trees, crops, and other property. At Fort Union after the storm of the 16th hailstones lay 6 inches deep on the ground. The quality of late fruits was somewhat improved by these good rains. The first general heavy frost of the fall occurred on the 17th, which capped northern mountains with snow and caused some slight damage to late melon and squash vines in northern gardens. Harvesting late wheat and oats was well under way by the middle of the month in northern sections, but the rains caused some delay and some slight damage.

On account of protracted droughts and early and severe frosts, field crops yielded very irregularly. In well-irrigated sections, and generally in northern counties where rains were more frequent and abundant, cereals grew fairly well, but crops as a whole yielded considerably under the average. With the possible exception of alfalfa, corn seemed to stand the long droughts better than other crops, but on unirrigated lands of southern and central sections many of the fields were almost total failures. The second and third cuttings of alfalfa and late garden truck, as beans, melons, squashes, cucumbers, etc., were, as a rule, the most successful crops of the season. With the exception of a few districts in the northern valleys, crops were beyond danger from ordinary weather conditions by the last of September. The first general killing frost occurred over northern and central sections on the 16th of October. Although water was rather scarce on the ranges, grass had cured excellently, and all reports indicated that stock was in prime condition to meet the coming winter.

Annual summary of meteorological data, Santa Fe, N. Mex., 1899.

	Pressure.			Moisture.[1]				Average daily cloudiness, 0 to 10.	Wind.				Percentage of sunshine.
	Monthly mean.	Extremes.		Dew point.		Relative humidity.			Average hourly velocity.	Maximum velocity.	Direction at time of maximum velocity.	Prevailing direction.	
		Maximum.	Minimum.	6 a. m.	6 p. m.	6 a. m.	6 p. m.						
January	23.18	23.39	22.92	11	10	68	42	2.3	7.1	36	N.	NE.	80
February	23.08	23.43	22.65	13	10	71	40	3.1	7.5	36	SW.	NE.	79
March	23.11	23.37	22.78	14	4	50	20	2.8	8.0	32	NW.	NW.	79
April	23.20	23.47	22.94	14	2	40	15	2.5	8.1	43	SW.	SW.	83
May	23.19	23.34	22.85	6	2	20	10	2.8	8.5	42	SW.	SW.	85
June	23.31	33.60	22.99	32	22	45	20	3.0	7.3	34	SW.	SE.	85
July	23.37	23.50	23.25	48	49	68	50	4.9	5.5	27	E.	SE.	69
August	23.34	23.45	23.23	38	39	49	31	2.9	5.6	32	S.	SW.	82
September	23.40	23.59	23.18	35	30	54	29	2.6	5.5	25	SE.	SE.	84
October	23.28	23.54	22.97	26	20	54	30	3.0	6.9	37	SW.	SE.	80
November	23.27	23.50	22.88	18	17	52	36	2.6	5.7	35	SW.	NE.	83
December	23.25	23.57	22.94	10	9	53	37	3.4	6.2	29	NW.	NE.	77
Year	23.25	23.60	22.65	22	18	52	30	3.0	6.8	43	SW.	SE.	80

[1] Mountain time.

Climatological data for the year 1899.

Stations.	Counties.	Elevation, feet.	Temperature, in degrees Fahrenheit.						Precipitation in inches.							No. rainy days.	Sky.			Prevailing direction of wind.
			Length of record years.	Annual mean.	Highest.	Date.	Lowest.	Date.	Length of record years.	Total for the year.	Greatest monthly.	Month.	Least monthly.	Month.	Total snowfall.		No. clear days.	No. partly cloudy days.	No. cloudy days.	
Albert	Union	4,700	8	57.2	101	[1] June 19	—5	Feb. 7	9	12.76	5.66	July	0	April	5.5	37	237	86	42	......
Albuquerque	Bernalillo	5,200	20	55.5	104	July 22	1	Feb. 12	17	(7.45)	3.23	July	0	May	11.4	......	......	......	......	S.
Alma	Socorro	5,500	6	55.1	101	Sept. 2	5	Feb. 6	6	12.91	5.24	July	T.	May	T.	59	......	......	......	SW.
Aztec	San Juan	5,590	5	49.4	95	July 1	—23	Feb. 7	5	9.77	3.30	Aug	0.05	May	24.7	50	139	59	67	W.
Bernalillo	Bernalillo	5,260	8	55.8	97	[1] June 11	1	Feb. 12	5	6.89	3.21	July	0	[1] May	5.0	33	......	......	......	SE.
Bluewater	Valencia	6,200	3	48.4	100	June 19	—8	Feb. 7	3	9.90	4.45	July	T.	[1] April	20.5	37	175	24	166	W.
Clayton	Union	5,178	3	(51.7)	95	June 20	—18	Feb. 11	2	......	10.51	July	0	[1] April	......	......	......	......	......	SW.
Deming	Grant	......	......	......	......	......	......	......	13	5.74	3.92	July	0	[1] April	T.	19	......	......	......	W.
East Las Vegas	San Miguel	6,450	11	51.0	94	June 20	—22	Feb. 7	8	15.86	7.09	July	T.	Jan	18.8	49	241	97	27	SW.
Eddy (Carlsbad)	Eddy	3,122	8	......	109	Aug. 12	1	Feb. 12	4	......	2.10	Nov	0	Jan	3.0	......	......	......	......	W.
Engle	Sierra	4,750	5	56.2	97	Sept. 1	—5	Feb. 6	5	7.72	3.67	July	0	[1] April	7.3	21	......	......	......	SW.
Espanola	Santa Fe	5,590	4	51.2	97	Aug. 27	—5	Feb. 12	4	6.25	1.66	July	0	[1] May	1.5	31	283	69	13	S.
Folsom	Union	......	2	48.5	95	June 19	—21	Feb. 6	2	20.05	5.34	July	0.24	April	45.0	53	199	144	22	SW.
Fort Bayard	Grant	6,040	25	54.8	100	Sept. 3	5	Feb. 7	23	10.78	4.66	July	T.	[1] May	5.0	48	......	......	......	W.
Fort Union	Mora	6,750	38	49.7	92	[1] Aug. 11	—17	Feb. 11	34	13.69	3.98	July	T.	[1] May	17.0	43	265	72	28	SW.
Fort Wingate	Bernalillo	6,649	32	50.4	94	June 19	1	Jan. 15	29	10.92	3.25	July	0.07	March	39.6	43	......	......	......	W.
Galisteo	Santa Fe	6,074	6	(52.4)	100	[1] Aug. 1	1	Feb. 8	6	(11.59)	4.64	July	0	[1] May	10.5	......	......	......	......	W.
Gallinas Spring	San Miguel	5,272	14	54.3	102	June 20	—20	Feb. 7	15	13.37	6.16	July	0.01	May	14.0	50	......	......	......	W.
Gila	Grant	4,040	5	59.0	102	Sept. 2	7	Feb. 7	5	12.60	5.15	July	T.	May	3.5	54	256	81	28	SW.
Hillsboro	Sierra	5,100	5	57.3	99	June 24	3	Feb. 6	7	4.60	2.22	July	0	[1] Jan	6.0	......	......	......	......	W.
Las Vegas Hot Springs	San Miguel	6,767	1	50.7	92	[1] June 18	—19	Feb. 7	......	......	......	......	......	......	......	69	288	53	24	SW.
Lordsburg	Grant	......	......	......	......	......	......	......	14	5.73	2.62	July	0	[1] May	0.8	......	......	......	......	W.
Los Lunas	Valencia	4,900	5	......	97	[1] June 16	0	Feb. 7	5	......	2.75	July	0	[1] May	2.0	......	......	......	......	......
Lower Penasco	Chaves	5,250	4	(55.9)	96	June 19	—9	Feb. 7	4	16.09	5.89	July	0	May	13.5	49	......	......	......	W.
Mesilla Park	Doña Ana	3,500	9	......	101	[1] July 4	2	Feb. 7	11	9.67	4.54	July	T.	May	1.9	47	220	94	51	SW.
Monero	Rio Arriba	7,356	7	......	95	July 1	—26	Feb. 7	5	......	2.97	July	0.11	April	......	......	......	......	......	W.
Olio	San Juan	4,800	2	......	......	......	—4	Feb. 6	......	......	......	......	......	......	......	......	......	......	......	W.
Puerto de Luna	Guadalupe	5,350	1	......	108	June 20	—9	Feb. 7	......	......	......	......	......	......	......	......	......	......	......	W.
Raton	Colfax	6,622	5	49.9	95	June 19	—16	Feb. 11	5	16.66	7.47	July	T.	Jan	18.1	48	......	......	......	S.
Rincon	Doña Ana	4,030	4	......	102	Sept. 2	7	Feb. 6	3	......	1.54	Aug	0	[1] May	......	......	......	......	......	W.
Roswell	Chaves	3,570	5	58.8	103	Aug. 12	—6	Feb. 7	5	16.56	4.87	July	0.06	[1] Jan	5.0	34	216	92	57	SW.
San Marcial	Socorro	4,554	3	57.9	98	[1] July 8	5	Feb. 12	3	6.78	2.34	Aug	0	Jan	2.5	28	181	162	19	S.
Santa Fe	Santa Fe	6,998	26	49.0	87	Aug. 27	—5	Feb. 7	26	10.05	4.71	July	0.01	May	14.0	81	234	99	32	SE.

Shattucks	Eddy	6,000	3	56.1	98	[1]June 7	— 8	Feb. 11	3	22.96	6.82	July	T.	May	22.5					SW.
Socorro	Socorro	4,600	6	55.7	100	[1]June 19	3	[1]Feb. 12	5	7.71	3.18	July	0	Feb.	4.2	37	189	121	55	N.
Springer	Colfax	5,857	1				—26	Feb. 7												
White Oaks	Lincoln	6,470	3	52.9	92	July 4	—12	Feb. 7	3	14.36	5.53	July	0	May	33.5	43	269	44	52	W.
Winsors	San Miguel	8,000	2	41.1	86	Aug. 28	—27	Feb. 7	4	19.05	5.19	July	0.15	[1]April		68	185	67	113	W.
Cambray	Doña Ana																			W.
Bell Ranch	San Miguel																			SW.
Gage	Grant																			W.
Strauss	Doña Ana																			E.

[1] Occurred also other dates or month.

NOTE.—Numbers inclosed in parenthesis ( ) are interpolated values. T., trace of precipitation.

Voluntary observers.

Station.	Observer.	Station.	Observer.
Albert	A. Knell.	Gila	Chas. H. Lyons.
Albuquerque	Prof. M. Custers.	Hillsboro	G. I. Given, M. D.
Alma	Wm. French.	La Luz	Mrs. H. T. Findley.
Aztec	C. E. Mead.	Las Vegas Hotsprings	Wm. C. Bailey, M. D.
Bell Ranch	C. M. O'Donel.	Lordsburg	Agent Southern Pacific R. R. Co.
Bernalillo	Brother Gabriel.		
Bluewater	J. S. Van Doren.	Los Lunas	Richard Pohl.
Buckmans	H. S. Buckman.	Lower Peñasco	J. F. Hinkle.
Cambray	Agent Southern Pacific R. R. Co.	Mesilla Park	New Mexico Agricultural College.
Clayton	[1] G. W. Guyer.	Monero	Mrs. C. D. Caldwell.
Deming	Agent Southern Pacific R. R. Co.	Olio	Cyril James Collyer.
		Puerto de Luna	P. R. Page.
East Las Vegas	Inez D. Rice.	Raton	[2] Wm. M. Oliver.
Eddy (Carlsbad)	Prof. E. M. Skeats.	Rincon	A. J. Coats.
Engle	E. J. Westervelt.	Roswell	W. M. Reed.
Española	Jim Curry.	San Marcial	J. W. McCoach.
Folsom	Jackson Tabor.	Santa Fe	U. S. Weather Bureau.
Fort Bayard	Post surgeon.	Shattucks	J. S. Shattuck.
Fort Union	M. C. Needham.	Socorro	Prof. F. A. Jones.
Fort Wingate	Post surgeon.	Springer	Dr. L. Hines.
Gage	Agent Southern Pacific R. R. Co.	Strauss	Agent Southern Pacific R. R. Co.
Galisteo	Sylvester Davis.	White Oaks	Urbain Ozanne.
Gallinas Spring	Jas. E. Whitmore.	Winsors	H. D. Winsor.

[1] Clayton—Dr. J. C. Slack, from February 24.

[2] Raton—F. D. Kilmer, from February.

Forecast display stations.

[Distributing center, Santa Fe.]

Station.	Display man.	Station.	Display man.
Albuquerque	Postmaster.	Raton	A. L. Hobbs.
Eddy	Pecos Valley and Northeastern Rwy,	Roswell	W. M. Reed.
		Silver City	Prof. A. E. Bennett.

Climate and crop correspondents.

Station.	Correspondent.	Station.	Correspondent.
Albert	A. Knell.	Las Cruces	New Mexico Agricultural College.
Albuquerque	Prof. M. Custers.		
Allison	Wm. Taylor.	Los Alamos	Wm. Frank.
Alma	Wm. French.	Los Lunas	Richard Pohl.
Aztec	Prof. C. E. Mead.	Lower Peñasco	J. F. Hinkle.
Bell Ranch	C. M. O'Donel.	Ojo Caliente	A. Joseph.
Bernalillo	Brother Gabriel.	Old Albuquerque	A. Montoya, jr.
Bluewater	J. S. Van Doren.	Olio	C. J. Collyer.
Buckmans	H. S. Buckman.	Puerto de Luna	P. R. Page.
Clayton	Dr. J. C. Slack.	Raton	F. D. Kilmer.
Cliff	T. J. Clark, jr.	Red Rock	Louis Champie.
East Las Vegas	J. Thornhill.	Richardson	Ed. McTigue.
Eddy	L. O. Fullen.	Rincon	A. J. Coats.
Elk	V. H. York.	Roswell	W. M. Reed.
Engle	E. J. Westervelt.	Santa Fe	A. Boyle.
Española	Jim Curry.	Shattucks	J. S. Shattuck.
Fort Union	M. C. Needham.	Socorro	Prof. F. A. Jones.
Fort Stanton	T. B. Coe.	Springer	Dr. L. Hines.
Fresnal	Allen Blacker.	Taos	Frank Staplin.
Galisteo	Sylvester Davis.	Tularosa	F. I. Otis.
Gallinas Spring	J. E. Whitmore.	Weber	E. H. Biernbaum.
Gila	Chas. H. Lyons.	White Oaks	Urbain Ozanne.
Hillsboro	F. I. Given, M. D.	Winsors	H. D. Winsor.
Hobart	W. H. Hough.		

Forecasts are bulletined at all stations along the Pecos Valley and Northeastern Railroad.

THE CLIMATE OF NEW MEXICO AND ITS EFFECT UPON TUBERCULOSIS.

[By Francis Crosson, M. D.]

Tuberculosis is the most widely spread and general disease afflicting mankind, and it is distributed over a larger portion of the earth's surface than any disease of which we have an absolute knowledge. No race of people, no portion of the habitable globe, can be said to be absolutely invulnerable against its invasions and destructive ravages. It is a disease so old that we have no reliable history extant telling us when and where it first appeared among the human race. Every age has brought forward its supposed panacea in an attempt to stay its mortal march. In spite, however, of everything that has thus far been devised or suggested for the prevention or cure of this alarmingly fatal malady, it may be said, in a general way, that we are still in the very infancy of our power to stay the onward progress of this arch enemy of mankind.

Since the announcement by Robert Koch, of Berlin, in 1882, of the specific causative factor of tuberculosis (the so-called bacillus of tuberculosis) practically nothing has been accomplished in either limiting or preventing the spread of this disease. Numberless remedies and alleged specifics have been heralded to the world from time to time; each has had its brief day of trial and failure, so that at the present moment it can be affirmed with great certainty that we stand practically as powerless to deal successfully, in a medical way at least, with tuberculosis as did the fathers of medicine centuries ago.

The treatment, prevention, and cure of tuberculosis have been more or less prominently subjects of discussion in both the newspaper press and periodical publications of the past few years. The public has been partially taken into the confidence of the medical profession. Educational and missionary literature has been freely disseminated by societies for the prevention of tuberculosis with the hope of familiarizing the reading public in some degree with the history, nature, and progress of a disease alarmingly fatal in its tendency when left unhindered to pursue its usual course. In spite, however, of these laudable efforts to educate individuals and create sentiment among public officials and legislators, the fact is quite patent to persons conversant with this subject that there is a very widespread misconception and misunderstanding concerning a disease which is alleged to be the cause of one-seventh of all the deaths occurring annually in the United States alone.

It has been stated by some writers that tuberculosis can be successfully treated in any climate. All experience, I believe, is against such a conclusion. It has been demonstrated beyond question that certain sections of the United States possess climatic characteristics which are peculiarly adaptable to the successful management of this disease. The so-called arid region of the great Southwest, which comprises portions of southern Colorado, all of New Mexico and Arizona, together with that part of western Texas known as "Llano Estacado," or "Staked Plains," may be included in this favored section. This vast and salubrious stretch of country, which is sometimes sneeringly alluded to as "a land of sand, sagebrush, and cacti," possesses in an almost illimitable degree those very elements which observation and experience have proven to be of the utmost value in the treatment of tuberculosis.

We are gradually getting away from the laboratory and drawing closer to nature for a solution to this problem. Where medicines have failed, the elements are succeeding. A pure atmosphere, containing an abundance of oxygen, ozone, and electricity, in conjunction with a large amount of sunshine, is to-day fulfilling in an eminently satisfactory manner the mission heretofore mapped out for such agents as cod liver oil, creosote, and the various poisonous concoctions known as serums.

The importance of climate as a factor in the treatment of pulmonary tuberculosis is daily manifesting more and more its value, whether taken separately or coupled with the various specific plans of therapy now advocated and employed in this important branch of practice. Physicians are informing themselves more widely upon this vital question, and the experiences gained by the practitioner living amidst such ideal climatic conditions as exist in New Mexico and other parts of the great Southwest are being looked upon with more interest and kindly consideration than has heretofore been accorded them.

The consensus of opinion as expressed by the leading authorities on tuberculosis at the International Congress held at Moscow, Russia, two years ago, was unanimously in favor of the climate treatment of pulmonary tuberculosis over all other methods considered.

The southwestern section of the United States is studded all over with tubercular patients, who came to this section many years ago—some of them as long ago as twenty-five years. They are to-day, and have been for many years, healthy citizens, have married and reared children who are to all appearances absolutely free from tubercular diseases.

Such a thing as infection with the tubercle bacillus, through the medium of the atmosphere, is absolutely unknown in New Mexico. I have taken great pains to investigate this subject. In an atmosphere where dead and discarded animal and vegetable substances undergo desiccation rather than decomposition explains in a manner the curative effect of climate upon pulmonary tuberculosis. The native people of New Mexico are singularly free from tuberculosis. I have had but three cases in a general practice among them covering a period of more than six years. In each of these instances I was able to trace the origin of the disease to a direct infection.

Animals, as well as the human race, are likewise remarkably free from tuberculosis in this region, as has been shown by the researches of Herrera and Lope in Mexico, where the climatic conditions are practically similar to those existing in New Mexico, Arizona, southern Colorado, and portions of western Texas.

These investigators report that they found 45 cases of tuberculosis in cattle out of 73,000 killed and examined at the Government abattoir in the City of Mexico.

It may be stated in a general way that all specific plans of therapeutic treatment thus far suggested for the cure of tuberculosis, and especially of the pulmonary form, have failed, so that we must look to nature rather than to the laboratory for our weapons to combat this enemy of the race.

In my experience the best possible treatment for incipient pulmonary tuberculosis is the nomadic life of the tent dweller carried out in a climate such as we have here in New Mexico, where the patient can live out of doors practically all the year around. I have had many patients recover under this plan of treatment.

The early diagnosis of pulmonary tuberculosis is of the utmost importance, for it is in the beginning of the disease that we must look for the greatest benefit in the largest proportion of cases from the climate or the out-of-door plan of treatment.

New Mexico is essentially a "land of sunshine and blue skies."

Here we have a dry and bracing climate with no extreme of heat and cold, a climate which, for the most part, admits of an existence out of doors almost all the year around. It is these qualities of air and sky that have caused this favored region to be known to-day over the entire civilized world as the "land of sunshine," and the peculiar adaptability of such a climate to the successful management of consumption and other diseases of the lungs and respiratory tract is causing invalids to flock here in great numbers, experience and observation having demonstrated beyond further question the fact that the seacoast resorts have proven dismal failures in exercising either a corrective or retarding influence upon the diseases mentioned above.

The past few years the medical profession, as well as the laity, have been made aware through various channels of the vastly superior climatic conditions existing throughout the Territory of New Mexico, and patients are seeking relief here by the hundreds where formerly we could estimate them only by the dozen.

I am not conversant with all of New Mexico's superior resources, but I am persuaded that chiefest among her items of wealth is her grand, glorious, life-giving climate.

In their pursuit of the germ of consumption investigators seem to be losing sight of the patient afflicted with this disease. Boards of health are suggesting all sorts of safeguards to limit the spread of consumption in the large and populous centers. Warfare against infected meat, milk, birds, and domestic animals is being waged with interminable energy in the hope of eradicating from the human race a disease that has baffled our best scientific minds for centuries.

So fierce and vindictive has this campaign become that at least one State—California—has threatened to establish and maintain a quarantine of exclusion against consumptive patients seeking residence or sojourn within the borders of that State. This is certainly carrying prophylaxis to an unreasonable extreme. To attempt to put into force such a drastic measure would surely raise serious questions concerning the rights of States as against those of individuals. Further than this, the adoption of such a silly piece of legislation would carry with it the implication that tuberculosis or consumption is a menace of the population in the same sense that smallpox, diphtheria, and scarlet fever are. This we know to be absurd. If tuberculosis is ever communicated from one person to another by direct contact, personal association, or even through the medium of the atmosphere, it is the very unusual exception and not the rule. To prove this statement we have merely to refer to the records of hospitals and sanitariums exclusively devoted to the treatment and care of persons afflicted with tuberculosis. I doubt if there can be found among these records a single well-authenticated case of the disease ever having been transmitted from the diseased to the healthy after years of daily personal contact. Instances are recorded occasionally where nurses and attendants have been directly inoculated or infected through cuts and abrasions on the hands while handling cuspidors and other receptacles while in the act of disposing of the infectious discharges from the diseased lungs. It is likewise true that various domestic animals and birds have tuberculosis, and in some instances they may be sources of danger to the human race. Many serious charges have been made against milk as a vehicle for conveying the germs of this disease into our bodies, but how many authenticated cases of the disease can be traced to such agents and sources?

Osler says "the requirements of a suitable climate are a pure atmosphere, an equable temperature not subject to rapid variations, and a maximum amount of sunshine." Given these factors and it makes little difference where a patient goes, so long as he lives an outdoor life. The purity of the atmosphere is the first consideration, and it is this requirement that is met so well in the mountains and the forests.

No medicinal agents have any special or peculiar action upon tubercular processes. The influences which they exert is upon the general health, increasing the physiological resistance and rendering the tissues less susceptible to invasion.

The problem of the prevention of the further spread of tuberculosis and its ultimate and complete eradication from the human race will be solved when physicians realize the importance of at once placing the patient suffering from, or threatened with, this disease in a suitable climate. Children inheriting that peculiar condition of the cellular structure and cell elements known as a tubercular tendency will develop, in a favorable climate, a cell antagonism to the disease which can never be acquired in a climate where tubercular diseases are more common and which favors the causes that lead to tubercular disease.

One of the most pathetic aspects of this disease is the fact that it has in the past and still continues to number among many of its victims many of the brightest and brainiest products of the human race. This fact seems doubly deplorable when it can be shown that many, if not all, of these useful lives could have been saved by a timely recourse to the climatic plan of treatment.

It is generally conceded by the most eminent writers upon bacteriology to-day that climatic conditions play a most conspicuous part in both development and retardation of microbe life. Epidemic diseases which have for their vehicles of distribution certain conditions of atmosphere, such as heat and moisture, constantly demonstrate their power for spreading contagion, the moisture contained in the air being the chief factor for preserving the vitality of the germ.

To any one familiar with the extreme differences existing along the Atlantic coast States and here in the Southwest, the great rôle played by the climate in each locality named will at once become strikingly apparent to the most indifferent observer. Epidemics such as "la grippe," so fatal and destructive in its train of sequelæ, are unknown in New Mexico. This is rather remarkable, in view of the fact that the bulk of the population (about three-fourths) are native peoples, who live in the most humble and primitive state, never employing any modern sanitary precautions to guard against epidemic invasions. After careful experiments and close observations for more than seven years, I am persuaded that the climatic conditions existing throughout the Territory of New Mexico, and here in the mountain regions more especially, the rarity and purity of the atmosphere, together with the almost constant direct rays of the sun, are the most powerful bactericides known to science to-day. In a climate where discarded animal and vegetable substances undergo prompt and rapid desiccation after brief exposure to the atmosphere without the least manifestation of decomposition argue most strongly against bacterial development. I have repeatedly made experiments with discarded sputa from tuberculous lungs and I find that the bacilli lose their infective power in a very short time after exposure to the sun's rays in this arid atmosphere. This, I think, clearly explains the curative effect of climate upon pulmonary tuberculosis. Constant inhalation of what may properly be termed an aseptic atmosphere in time brings about in the pulmonary tissues, inflamed by tuberculous deposits, that very desiccation effected upon animal and vegetable substances exposed directly to the air.

Here in New Mexico, where we constantly have a large colony of invalids, principally persons with tuberculosis, I have yet to meet with a single case of tuberculosis communicated from the diseased to the healthy through the medium of the atmosphere. That the native people of this section, both Mexican and Indian, experience such wonderful immunity against tuberculosis, especially of the respiratory tract, must have its explanation in the very favorable climatic conditions surrounding.

In order to derive all the possible benefit from such a climate as that of New Mexico, the health seeker should live out of doors. If he has the strength to get about at all, the best he can do is to go into the pine forests and camp out. The nomadic life of the tent dweller is the best treatment for incipient pulmonary tuberculosis. It is often a grave mistake for an invalid to seek change of climate in a place where he has no friends, no occupation—nothing to distract his mind from himself and his malady. In a few days he exhausts the possibilities of mere curious interest in unfamiliar surroundings, and then he strolls about alone, or with chance acquaintances, until he becomes weary of the town and the monotony of his existence. Homesickness ensues, the mental disease more than counterbalances the climatic benefit, and the health seeker in desperation returns to his home, preferring the certainty of death among friends to the possibility of a prolonged existence under insupportable conditions. If such a health seeker would procure a saddle horse, pack animals, and a camp outfit, and go into the mountains with a good guide and agreeable companions, he would find no monotony and no homesickness, but would gain strength and buoyancy of spirit, and never know a dull hour. A year of outdoor life in the dry, bracing air of New Mexico will, I believe, arrest any case of beginning pulmonary tuberculosis if the sufferer has the necessary strength and vitality to begin such a course of treatment and takes ordinary precautions against undue exposure and overexertion.

In a period of eight years I have observed not so much the contrast as the very striking results following the use of specific plans of therapy as compared with the influence of climate upon diseases of the respiratory system in general, but with more especial reference to pulmonary tuberculosis, and I must admit in the most candid terms that any alleged specific employed or indicated in this class of affections will have its efficacy overwhelmingly augmented if suitable climatic conditions have a proportionate consideration with the medical agencies employed.

Recognizing the superior climatic advantages of New Mexico for the treatment of diseases of the respiratory system, the United States Government has recently established, and has now in successful operation, two large sanitariums here, one operated under the auspices of the War and the other under the Navy Department, for the climatic treatment of soldiers and sailors afflicted with tuberculosis. Subjoined are letters appertaining to these institutions, which, I trust, may prove of interest.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Fort Stanton, N. Mex., January 29, 1900.

DEAR DOCTOR: I hardly know what to tell you or where to begin. In the first place, the sanitarium is where old Fort Stanton stood, and many of the buildings, which were of stone and adobe, are being repaired and modernized.

The reservation set aside for our use is 8 miles long and 4¾ miles wide. Running through the reservation for 8 miles is the Rio Bonito, a beautiful stream, which is fed from the snows of White Mountain, on which the snows are nearly perpetual.

On the reservation there are two very fine springs and many smaller ones. We have beautiful trees and absolutely no dust. Our rainfall is 19 inches for a period covering fourteen years of observation. Our winters average slightly warmer than Albuquerque and much cooler in summer.

There are 38 buildings, all told, most of which are of stone.

Extensive repairs will be made this summer. At present there are 22 patients on hand, the station having been open to receive patients just two months. We are only receiving cases in the first and second stages, therefore we shall fill up slowly.

In the treatment all faith is put in the climate, with constant life out of doors, and to the best food we can give them.

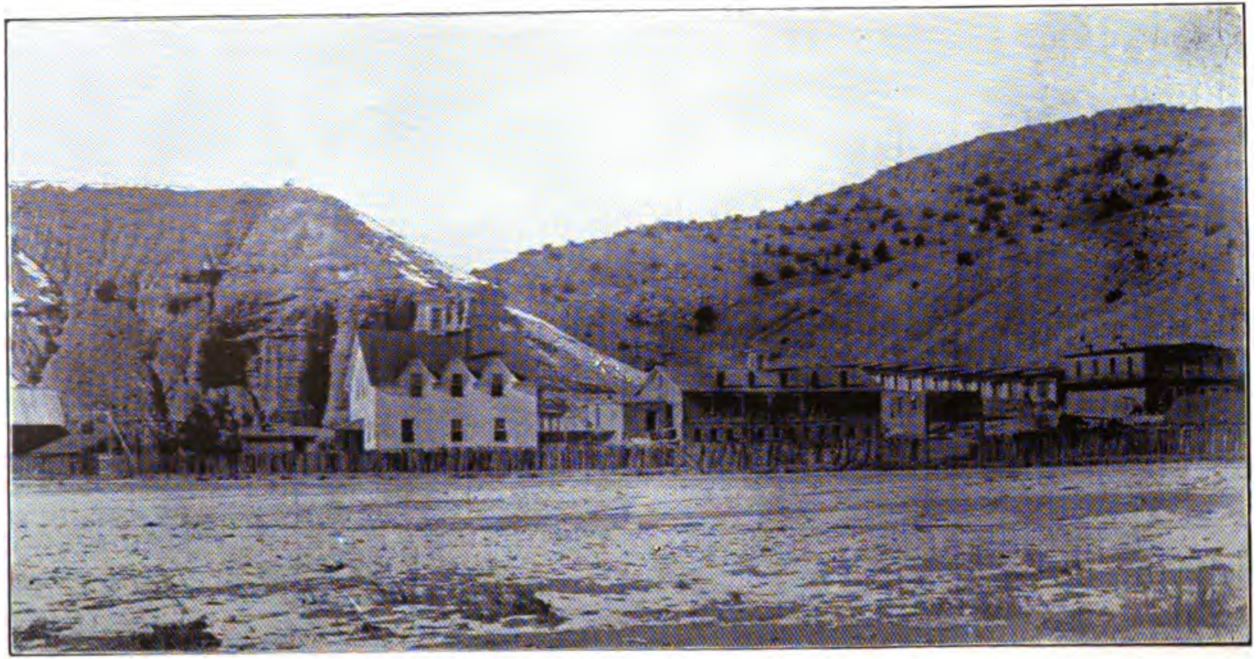
The methods of the foreign sanitariums are followed in many respects.

We intend to raise our own cattle, chickens, etc. At present we are operating a small poultry yard, and make our own milk and butter from a small herd of very fine Jersey cows. In the summer we shall start to make koumiss and kifer. We have 200 acres of alfalfa lands under cultivation for hay for cattle. There is more farming land than we shall be able to use for some time to come.

The patients are encouraged to walk and ride, ponies being furnished when desired. Fort Stanton is 6½ miles from Capitan, a station on the El Paso and Northeastern Railroad, a new road which has just been built from El Paso. The station is outfitted with a complete set of modern surgical instruments and appliances, a bacteriological laboratory outfit, X-ray outfit, and all late apparatus for the treatment of the disease.

Respectfully, yours,
J. O. COBB.

Dr. FRANCIS CROSSON,
Albuquerque, N. Mex.



Ojo Caliente, Joseph's Hot Springs, Taos County, N. Mex.

Marine-Hospital Service Sanitarium,
Office of Medical Officer in Command,
Fort Stanton, N. Mex., June 30, 1900.

Dear Doctor: In answer to your letter of June 26, 1900, I have to state that to date, and which is the end of our fiscal year, there have been admitted 65 patients; 6 have died, 11 have been discharged, and 48 are still under treatment. The class of cases represents all stages, from the most serious to the case in the first stage.

There is connected with the station a farm, dairy with herd of Jerseys, chicken ranch, and vegetable gardens.

During the last fiscal year repairs have been going on slowly. During the coming year a 2-ton ice plant, a complete modern steam laundry, a complete set of steam disinfectors, and all necessary appliances for a modern sanitarium will be installed.

Respectfully,

J. O. Cobb,
Passed Assistant Surgeon, U. S. M. H. S.

Dr. Francis Crosson,
Albuquerque, N. Mex.

United States General Hospital,
Fort Bayard, N. Mex., June 28, 1900.

Dear Sir: In reply to your letter of June 26, 1900, at the request of Maj. D. M. Appel, the commanding officer of this hospital, I have the honor to state that the short time this institution has been in existence precludes the possibility of conveying an adequate idea of the work. However, the first annual report, to be published at the end of the year, will probably furnish all the data you require.

Briefly, to date 142 patients have been received, and 80 are now under treatment. Of the latter 36 are improving, 22 are convalescent (without bacilli in sputum), and 22 are not improving.

Of those discharged 13 are dead, 15 were improved, 13 were unimproved, 13 were convalescent, and 10 were cured.

The treatment here consists of open air and diet.

Hoping that the above will answer your purpose, I have the honor to be,

Very respectfully,

E. Bullock,
Acting Assistant Surgeon, U. S. A.

Dr. Francis Crosson,
Albuquerque, N. Mex.

At the Government sanitarium at Fort Bayard there are at present 75 patients from the Army. Dr. Appel, the chief physician, says that the results of the climatic cure of this disease, as shown by the records of this institution, are little short of marvelous. A dozen cases of incipient consumption have been completely cured since the sanitarium was established, nearly a year ago, and in the Government report on the sanitarium, which will be made in a few months, he promises some statistics that will startle the medical world. A large sanitarium is to be established in the immediate vicinity of the sanitarium by Eastern capitalists. The patients at Fort Bayard are given outdoor employment, and are kept out of doors the greater part of the day and night.

CLIMATIC CONDITIONS.

There is no portion of the Union possessing such splendid climatic conditions as exist in this Territory. Here we have a dry, arid temperature, with no extremes of heat or cold, with clear, bright skies and an almost continuous sunshine, that has given New Mexico the well-known sobriquet of "the Sunshine State."

The climate is peculiarly adapted to the cure of pulmonary diseases. A celebrated physician who has given much study to the subject, and who recently made a tour of Europe and America in the interest of this class of the afflicted, investigating the climatic conditions of the various countries with reference thereto, recently stated that the conditions existing in New Mexico were superior to those found elsewhere; that it was an ideal climate for the cure of pulmonary diseases. This is conceded by the best-informed medical experts.

It is probable that at this time there is no disease that afflicts so large a class of humanity with such fatal results as that of pulmonary consumption; none that causes so much suffering, pain, and sorrow. It is a scourge affecting every class, the rich and the poor, the high and the low—all fall beneath its blight and succumb to its dreadful ravages.

Medicinal science has never been able to master it, or to discover medical appliances or remedies that will cure it when once it has a firm hold upon its victim. The greatest minds of the profession have devoted their lives to its study, searching for remedies without avail. All agree that nature's remedy is the best and only cure. Breathing of a pure, invigorating, rarefied atmosphere in an equable climate, with clear, bright sunshine, where the heat of the sun is at its maximum and that of the air at its minimum, are the best conditions for its cure.

All of these conditions are found at their best in New Mexico. In every community may be encountered those who have taken advantage of these life-giving qualities. In a large majority of cases where the invalid has come in the early stages of the disease he has found relief and either been entirely cured or had many years added to his life.

OUR MATCHLESS CLIMATE—PEERLESS AMONG PLACES, NEW MEXICO'S CLIMATE MAKES OF MERE LIVING A LUXURY.

Such are the general features of the climate of New Mexico, diversified, of course, by the peculiarities of each particular place as to whether in the northern, central, or southern part of the Territory; whether in river valley, on low-lying table-land, on higher mesa, or on mountain side; whether in sandy sections, on clayey soils, or in the rude wilderness of rock and gravel; whether surrounded by primeval pine forests, dry stretches of barren prairies, cultivated fields of grains and grasses, luxuriant orchards and gardens and vineyards; whether with eastern, western, northern, or southern exposure—in fact, the modifications are so innumerable in themselves and in their combinations that no two places, even a few miles removed, can be said to have identically the same climate. And yet the same general features pertain to all: Mild winters, cool summers, nights never warm, ceaseless sunshine, dry air, little rain, great altitude, no malaria, and abundance of electricity, making the matchless climate of the world. It is not given to the earth to claim perfection, but New Mexico comes as near perfection in climate as the world can produce. The mere act of living here is in itself an indescribable luxury. The drinking in of its pure, dry, electrified air is like taking an elixir. The walking on its elevated soil, where 7,000 pounds of air pressure have been removed from the ordinary human body, is like treading a new world. To gaze into the vast serenity of its dazzling blue sky, unflecked by cloud, undimmed by storm, is a pleasure never to be forgotten and never growing stale by repetition. To look out over its landscapes, with their sharply contrasted high lights and deep shadows, as of a scene illuminated by electricity, makes other views grow tame upon the eye. In summer, to arise every morning invigorated from a refreshing sleep between blankets, and to retire again in the evening without the lassitude and abject weariness produced by having spent the day in a sweltering sweat box; in winter, to know nothing of the piercing, prying, not to be excluded cold, gnawing its way to your very marrow and curdling as it were the actual blood in your veins—to escape these, and have a winter with but few days when an overcoat is needed by anyone attending to business, and with almost every day permitting invalids to enjoy the sunshine and fresh air by walking, driving, or sitting in the parks, and, on the other hand, to find in summer that fans are never required for comfort, and that as soon as the sun goes down, from the mountain heights and the lofty valleys there come sweeping upon the lower lands cool and invigorating breezes, laden with resinous aroma and surcharged with electricity, carrying health to diseased lungs and throats, strengthening the entire frame, building up the physical man, invigorating depleted brain tissue, restoring destroyed appetite, quieting excited nerves—in a word, turning back the hands of life on the dial of age—to experience these things is to fall in love with the land and to be unwilling ever again to live elsewhere.

TO THE HEALTH SEEKER—EXCEPT WHERE ALTITUDE IS HARMFUL NEW MEXICO INVITES THE AFFLICTED OF THE EARTH.

While every class of invalid, except those suffering from heart trouble, will find relief in the climate and medicinal waters of New Mexico; while miasma is unknown and malaria can not be produced for lack of decaying organisms; while the water is pure and wholesome and the air is tonic in cases of feebleness and debility; while stomach and bowel troubles are unknown among infants, and children are remarkably free from the insidious ills that wait on childhood; while rheumatism and skin and blood diseases vanish before the application of New Mexico's thermal waters; while all these and many others may be beneficiaries of the Territory's matchless climate, it is to the consumptive that this "land of sunshine" is emphatically the land of hope and health. The abundant electricity produces an unusual quantity of ozone from the oxygen of the atmosphere, and the pure, dry air, the ozone, and the balsamic exhalations rolling down from the pine-clad mountains, form an ideal natural medicament for all diseased air passages and mucous membranes, and they, in connection with the altitude, requiring greater lung activity, and the ceaseless sunshine, vitalizing every function of the human frame, will invariably cure consumption if it be taken in time, and if the health seeker avail himself of nature's remedies by a life of outdoor exercise.

There are more men in New Mexico who have recovered from consumption after having been given over by their doctors in the States than are to be found in all the rest of the country put together. They came here, they recovered, and they are now among the leading men of the Territory. Consumption among the natives is absolutely unknown, and the children of consumptive parents coming here from the East grow up without the taint.

NEW MEXICO THE WORLD'S GREATEST CLIMATIC RESORT FOR THE CURE OF CONSUMPTION, THROAT, AND LUNG DISEASES.

Consumption is the scourge of humanity, one death in every six being placed to its charge. When it is remembered what a mighty army of diseases death marshals against the race, and yet that a sixth of the slain is from this one disease, the fearfulness of its curse becomes appalling. It shows that for other diseases science has found remedies, but that against consumption all knowledge and efforts are helpless. Hereditary and contagious, and often originating apparently without either cause; sometimes skipping a generation or certain members of a family, but ever returning for a prey to their descendants; as the race increases and as the appliances of civilization are augmented, cutting wider swaths in the field of human life, and yet laughing to scorn all medical skill and proving obdurate alike to the discovery of the scientists and the nostrum of the charlatan—such is consumption, the invincible lieutenant of death.

STUDY OF STATISTICS.

For some time the gathering of statistics had shown that consumption is much more prevalent in certain sections of country than in others. For instance, the proportion has been stated as Maine 50, remainder of New England States 25, Minnesota 14, Southern States 6, New Mexico 3; the last being less than anywhere else in the United States. But the further study of statistics brought to light the fact that, taking the world over, the greater or less prevalence of consumption accompanied certain marked differences in climate; and soon the climates of greatest and least prevalence became accurately defined. From this it was but a single step to the conclusion that those climates in which consumption least prevailed, or, in other words, which most largely prevented the disease, would be the climates most conducive to recovery from it. This conclusion was the more readily reached because medical science, despairing of materia medica, had been for some time empirically experimenting in the matter of climatic cure.

CLIMATE THE ONLY CURE.

The study of statistics brought to light the fact that those sections were the least affected with consumption which combined the most thoroughly in their climates aridity, altitude, sunshine, scanty vegetation, and absence of extremes in either heat or cold. This much being established, in 1885 the medical congress of France appointed a committee to make a thorough examination in any part of the world that gave promise of the requisite climatic conditions in any considerable degree. It was agreed that the greatest equability was to be found in the valleys of a mountainous country, where of necessity there would be comparative immunity from the winds and storms which sweep over the plains and coast regions. The committee agreed that the proper temperature would be found between the thirty-second and thirty-sixth degrees of latitude, where the patient would not be exposed to the severe weather of the North or the enervating influences of the South. The altitude necessary to give the best degree of atmospheric pressure was held to be about 5,000 feet above sea level, as less altitude gives too much pressure and hastens the destruction of lung tissue, while a higher altitude subjects the patient to the danger of other complaints.

This committee visited Asia, Africa, and North and South America, and agreed that the Rio Grande Valley of central New Mexico was the locality wherein the necessary conditions were found in the highest degree. But one locality—a small territory in the northern part of Africa—compared favorably with it. The American Health Resort Association, in the year 1891, formally decided upon central New Mexico as the most suitable place in the world, and indorsed the report of the French physicians who had investigated the subject.

So much for theory. Now for experience, for when experience—the same, practically, as experiment—confirms theory or hypothesis, demonstration is regarded as established. Doubtless there is still a great deal to learn, but this much may be accepted as definitely determined:

First. That the bacilli of consumption will not develop at a greater altitude than 4,500 feet in combination with a dry atmosphere and abundance of sunshine. The development of the baccilli begun elsewhere will be arrested, and the progress of the disease be checked in all cases where not more than 10 per cent of the lung surface has been affected. Relief has been experienced and practical cures have been wrought where much greater proportions of the lungs have been attacked, but 10 per cent is believed to be the line of comparative safety.

Experience has also demonstrated that dampness of atmosphere furnishes a stimulus to the development of consumption, producing bacilli equaled by no other agency and approached in efficiency only by confinement within doors, cut off from exercise and direct sunshine, and accompanied by the customary inhalation of the superheated and vitiated atmosphere of a sick room. No wonder it is, where the dampness prevails for six months of the year and the other condition is necessitated during the remaining six to protect the invalid from the rigorous cold his weakened vitality is unable to resist, that in such localities consumption runs riot, and to be affected is to die. Yet such conditions prevail over large portions of the habitable globe.

Experience has further demonstrated that, while the most favorable points near the coast are loaded with moisture, this Territory furnishes a dry, germless, healing atmosphere, noted for rarity, aridity, purity, and abundance of ozone and electricity, with the added excellence of practically perpetual sunshine, and seasons destitute of excessive heat or rigorous cold. Thus is met the entire demand for dryness, evenness of temperature, elevation, sunshine, and tonic atmospheric effects—the five prime attributes in the conflict with consumption, nowhere else found combined in such fullness and perfection as in the climate of New Mexico. As incidentally illustrating this claim it may be said that fresh meat is so perfectly cured by hanging in the open air it may be preserved for use indefinitely. Water will remain for months in basins formed by rocks in the mountains without stagnating or becoming impure. A dead animal may lie for months slowly drying and crumbling away, but giving forth no offensive odor.

But investigation has further brought to light the fact that while for ages prior to the conquest of Mexico consumption prevailed exclusively among the Spaniards, and is equally prevalent to-day, yet for centuries the New Mexico Spanish-Americans have been absolutely free from the disease, and the very name of it has long since passed from their vocabulary. Although many consumptives have made their home in this Territory, none of the natives have been known to contract the disease. Also the native born, whether Spanish or of other extraction, possess an absolute immunity, and this seems to apply even to those whose parents are consumptive.

The bearing of this fact is altogether important. If the death rate from consumption in New England is eight and one-third times that of New Mexico, and if the native born, regardless of national descent, have furnished not a unit to the ratio, then must the deaths have been of those seeking this climate for recovery, and they should be credited to the sections whence they came, leaving New Mexico represented by zero in the list. Of course not all who come can be expected to recover. In many instances the patient can not be induced to make the change during the early stages, but, with the fallacious hopefulness characteristic of the disease, resists warning and advice until destruction of the lung tissue is so extensive as to be beyond repair even under the best climatic conditions and treatment. The necessity of being out of doors and active in order to reap the benefits which the climate offers is the testimony of all.

But another fact in this connection has been established, and it is worthy of all consideration. It was presented by Dr. William D. Barton, passed assistant surgeon, United States Marine-Hospital Service, in the North Carolina Medical Journal, January, 1896. After having laid down the proposition that the proper climate for curable or arrestable consumption is now almost as clearly defined as the value of vaccination and the relation of microorganisms to disease, and after clearly stating that in his belief the central portion of New Mexico is the preeminently favored region of the arid West, the most nearly ideal section for climatic treatment of lung troubles accessible to the people of the United States, he says:

> Practically, tubercle germs do not infect here. Children of consumptives grow up heartily. The germs fall on barren ground and do not multiply. Without reckless disregard of all hygienic and preventive measures, this state of things will continue for many years or forever. These arid regions are nature's sanitarium for tuberculosis.

The following extract is from a very interesting paper by Dr. J. L. C. Whitcomb, of Liberty, N. Y. This paper was published in the New York Medical Record of September 25, 1898: "The one point I wish to emphasize with all the force I am capable of—the point, the importance of which overshadows and minimizes every other consideration in the treatment of this subject—is that suitable climatic environments are the absolute requisite of any successful treatment of phthisis, so far as medical knowledge can affirm at the present time. Of no other disease can this be said. In a nutshell, our one rational treatment is: First, early diagnosis; second, a suitable climate. Give the patient the benefit of these, and we give him nine chances to get well to one against it. * * * What is needed is oxygen—the oxygen of pure, dry air. This alone is a specific in early phthisis. It will not cure every case—no specific does that—but it will cure nine in every ten, providing enough of the remedy is taken."

One of the most important medical gatherings of recent times was held at Moscow, Russia. The occasion was the meeting of the International Medical Congress. It brought together more than 7,000 medical men, among whom were the recognized leaders of every civilized country. One meeting was devoted to the discussion of the present methods of treating tuberculosis. The quotations given below are from papers read by some of these great men.

By Dr. Von Ziemssen, of Vienna: "As far back as we can see in the history of medicine, fresh air has been one of the requirements in the treatment of tuberculosis, but it is only of late that the advantage of high altitudes has been clearly demonstrated. That tubercular patients can get a quantity of fresh air in these regions is evident to anyone who has visited the places; * * * but the fresh air that surrounds them is not all—the altitude brings about an excitation of the blood-making organs that increases the corpuscular elements in the blood. Even in health this reaction takes place, but not so markedly as in the diseased states."

By Dr. Senator, of Berlin: "I am convinced that the only treatment of value is the climatic, and I believe high altitudes are of value. I regard altitude as a factor second only in importance to fresh air. Sunlight is also of great value, and the sun's rays themselves exert a particular influence."

By Dr. Von Leyden, of Berlin, Germany, greatest general practitioner: "We must not look to the future; we are living in the present and must treat in the present. So far the only treatment that has given any success is the climatic. My best results have been obtained in mountains. The more comfortable a patient be made there the better, as a rule, will be the results."

By Dr. Kornig, court physician of St. Petersburg: "I have found an increase in the red blood cells in patients who have gone to high altitudes, and I am inclined to attribute to this increase a large part of the benefit derived from mountain sanatoria."

By Dr. Jarvein, professor in the Military Academy of St. Petersburg: "After listening to the greatest authorities in Europe on the treatment of phthisis in mountain sanatoria, I believe there can be but little doubt in the minds of those present that this is at present the only mode of treatment."

By Dr. Vivant, of Monte Carlo, Riviera, France: "The climate must be justly regarded as of value in the treatment of this disease (tuberculosis), and offers a certain number of features in common, viz: Pure air—that is, oxygen—in an unlimited quantity; and dryness—that is, absence of fogs, of air charged with moisture, to interrupt light, heat, and chemical action of the sun's rays."

ESPECIALLY NEW MEXICO.

Dr. George Halley, professor of surgery, Kansas City Medical College, says: "New Mexico possesses the seven great requisites of a sanatorium for the treatment of consumptive patients and those suffering from bronchial and certain forms of throat affections. First, a very dry aseptic air, experiment showing that the atmosphere is as free from harmful bacteria as that of midocean—the purest known to science. Second, a light atmospheric pressure caused by the high altitude of the country, and ample table-lands where the air has free movement and the rays of the sun uninterrupted play. Third, a maximum of sunshine and minimum of cloud. Fourth, a slight variation of temperature only between the extremes of heat and cold. Fifth, a minimum likelihood of sudden changes of temperature. Sixth, a light, porous, dry soil. Seventh (and very important), a low dew-point. I have sent many patients there, and the result has always been beneficial.

"It seems, at first sight, a long distance for patients to travel from France to New Mexico; but there is, I believe, no climate in southern Europe or northern Africa—the localities hitherto utilized for this purpose by Europeans—that can compare for a moment with that of New Mexico and parts of Colorado, for the treatment of consumption."

Speaking of the immunity of New Mexico from consumption, ex-Surgeon-General W. A. Hammond, United States Army, says: "New Mexico is by far the most favorable residence in the United States for those predisposed or affected with phthisis (consumption). In a service of three years in New Mexico, during which period I served at eight different stations, I saw but three cases of phthisis, and these were in persons recently arrived from elsewhere."

Dr. O. D. Walker, professor of physiology and diseases of the nervous system in the Keokuk Medical College, Keokuk, Iowa, and formerly physician in charge at the Government Indian school, Lawrence, Kans., makes the following interesting and valuable report of his observations in New Mexico: "I have carefully observed the salutary effects of this climate upon patients. A young lady, age about 18, came to me July 1, 1896, suffering from incipient phthisis. She was having night sweats, losing flesh, looked pale, and suffered from a very distressing cough. The microscope showed an abundance of tubercle bacilli. I used creosote and injections of Paquin's serum without marked benefit, and finally advised her to go to Las Cruces, N. Mex., which she did. Her cough rapidly improved, and the night sweats stopped; she gained 20 pounds of flesh in a few months and grew strong and hearty. I saw her in Keokuk July 5 last. She seemed to be perfectly well. Had she remained in the Mississippi Valley I think she would have succumbed to this then rapidly progressing disease within six months under any line of treatment."

"The highest interior of our continent comprised in the great table-land extending from the Great Divide in Colorado, through New Mexico, is not excelled anywhere in the world as a resort for consumptives. The altitude, the dryness, the purity of the atmosphere, and the large amount of ozone it contains, combine to create conditions very favorable to recovery from phthisis."—[Dr. Gatchell, in the Medical Era.

"The air here (New Mexico) is very dry, but its rarity is tonic and stimulating. The various altitudes and latitudes give a great variety of climates as to temperature and atmospheric tenuity, but all are alike in dryness."—[F. H. Atkins, M. D., S. B., in the Climatologist.

The Los Angeles Bullion says: "The climate of New Mexico leaves nothing to desire, and it constitutes an element of growth and prosperity in the future that is too important to remain neglected."

"New Mexico is fast becoming a favorite resort for consumptives, and as physicians learn more of its advantages it will grow still more rapidly in favor. Its uniform temperature, almost constant sunshine, and its dry, rare atmosphere are elements that commend this climate to our consideration."—[F. E. Waxam, M. D., professor of laryngology and rhinology, College of Physicians and Surgeons, Chicago.

"I think New Mexico surpasses any locality for consumptives I have yet visited, and I have been all over California, Colorado, the South, the Sandwich Islands, and Europe. * * * I am decidedly of the opinion that the region visited is, for consumptives, superior to any other part of the United States or the world, of which I have any practical knowledge."—[J. F. Danter, M. D., in Medical Visitor.

The Kansas City Medical Record, a high authority on such matters, in an editorial upon the subject of "Health resorts," speaks as follows: "It has been a great satisfaction to us to find our opinion regarding the sanitary characteristics of New Mexico indorsed in a most significant manner by some very high authorities on the subject. Some time ago a party of medico-scientists, commissioned by the Société Médicale of France, arrived in New Mexico, after inspecting many parts of the world held in high esteem as winter and summer resorts for consumptives. Their object in thus journeying was to examine and report upon the sanitary qualifications of these different localities and countries, the end in view being the location of a large sanatorium for the treatment of consumption. The commission (with, we believe, the exception of one member, personally interested in another locality) reported upon New Mexico as in every respect better suited for such a purpose than any country they had visited, including far-famed Algeria and other places heretofore noted as health resorts, especially emphasizing the fact that a case of consumption was never known to have originated in New Mexico."

But the strongest proof, however, that the central part of New Mexico is superior to all other sections of the United States for the climatic treatment of consumption has just been given by no less an authority than the United States Government itself. The abandoned military reservation of Fort Stanton, in this Territory, has become by Presidential order the property of the Marine Hospital Corps, and the work of fitting the place up as a sanitarium for consumptives in the marine service is now in active progress. As soon as the buildings can be made ready for their reception, all the consumptive patients in all the marine hospitals of the country will be taken there.

Surgeon-General Wyman says the establishment of such a sanitarium is a matter that he has had in mind for many years, his object being to place the patients where they will be under the best natural conditions and at the same time be isolated from the rest of the world, thus securing the maximum of advantage to the afflicted and the minimum of danger to the public.

The late Dr. Bratton, of the Marine Hospital Corps (already quoted from in this article), was stricken with consumption, and was restored to perfect health by a sojourn of two years at Albuquerque.

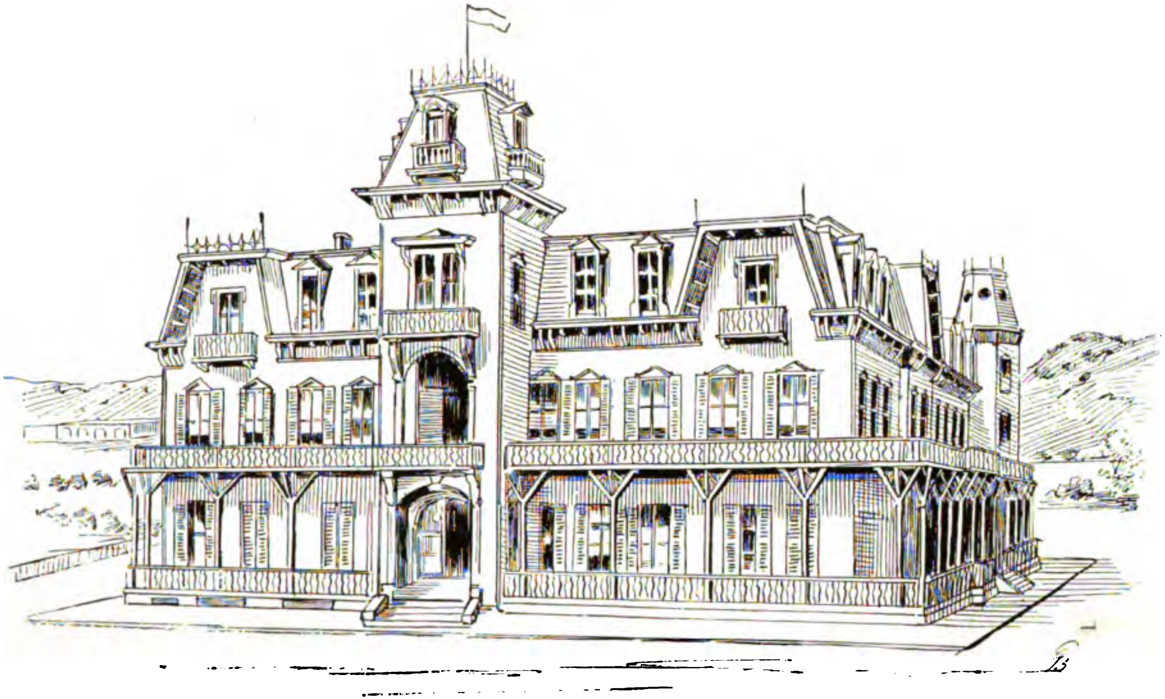
Dr. Bratton was instructed by the Surgeon-General of the United States to prepare a report upon the benefit of the New Mexico climate to consumptives, and also to make an examination of all the Government property in the Territory which there was any chance of the Marine Corps securing for a sanitarium for consumptives, giving his opinion about the different sites. He made an exhaustive report upon the subject, and agitation began for the donation of some Government reservation in New Mexico to the Marine Hospital Corps to be used as a sanitarium for consumptives.

This agitation resulted in the corps securing the abandoned reservation at Fort Stanton, with all its buildings and improvements, and the Surgeon-General considers it an ideal place for the purpose. Dr. Cobb, of the Marine Corps, is already on the ground with a strong force of laborers, and the work of putting the place in readiness for the reception of patients is progressing rapidly. There are thirty-eight good buildings on the reservation, and it is thought they will afford ample room to accommodate all the consumptive patients from the various hospitals now being used along the coast, and as soon as these buildings can be made ready for the reception of all patients of this class, they will be taken there at once. It is hoped by physicians, and by the friends of humanity generally, that this experiment will do much toward pointing out the way to the ultimate control of this terrible malady.

It may be added to the foregoing that Fort Stanton is a beautiful place, the main buildings inclosing an open square several hundred feet in diameter. The ample grounds surrounding, which will be beautifully kept, will add much to the comfort and pleasure of the patients and invalids, and will enable them to spend the greater portion of their time in the open air and sunshine, which plays so great a part in the recovery from this terrible disease.

But the asthmatic or the consumptive is not the only invalid who may turn his eyes with hope to this Mecca of the afflicted.

To the overwrought, mentally or physically, to the run down from dissipation or disease, to the prostrated, whether from devotion to business or pleasure, to those who have lost appetite, lost the pleasures of sleep, lost interest in life, whatever the cause or reason—to all these New Mexico extends her hands of healing. Her bright skies and radiant sunshine; her pure, dry, rarified air, surcharged with electricity and saturated with ozone, tonic, and invigorant; her incomparable nights, cool, refreshing, delightful, making sleep the greatest of all luxuries and absolutely incompatible with insomnia—these are the things that come of merely being in the climate, and bring their blessings of quieted nerves, restored strength, increased flesh, regained appetite, and recovered sleep, just simply whether we will or not. Such are the climatic conditions of New Mexico, to which hundreds of people who have been benefited will gladly testify.



Palace Hotel, Santa Fe, N. Mex.

THE SUPERB CLIMATE.

A knowledge of the contour of New Mexico in relation to the surrounding country is necessary to clearly understand the cause of its climatic advantages, that are not possessed by any other part of the United States. A study of the Rocky Mountain region reveals the fact that the great chain from the far north is broken in its continuity as it leaves Colorado. In New Mexico there are smaller ranges, with here and there lofty peaks with timbered slopes and barren crowns to relieve the clouds of moisture. From them incline fertile valleys and grassy upland plains to the Gulf region until, when the southern border is reached, there are no mountains between New Mexico and the southern water. Three-fourths of this Territory has an altitude of 5,000 feet. At the southern border the valleys have dropped to from 3,000 to 4,000 feet, while the Santa Fe valley, at the capital city, has an altitude of 6,967 feet at the plaza.

A country of such varied altitudes must have some variety in climate, but the variation is in degrees of temperature mainly, for in general the climate of New Mexico is dry and salubrious. The rainfall is principally confined to showers in the summer, with little rain or snow in the winter, except in the northern part of the Territory.

Near the extreme southern line, in the Sacramento Mountains, a lofty peak is the first considerable elevation met with, as the moisture-laden gulf clouds drift to the northwest, and this precipitates rain to greater extent than any other mountain, the rainfall there having, in exceptional seasons, been estimated at 48 inches. But over the Territory the normal precipitation ranges from 8 to 35 inches, according to elevation.

COMPARATIVE TEMPERATURE.

The southern valleys are, of course, the warmest portion of New Mexico in the summer, but the hottest are pleasanter in midsummer than the east, because the air is dry, rapidly absorbs the moisture of the skin, and has a cooling effect. The weather is never oppressive, the nights are always cool enough to sleep under cover, and generally under a blanket.

Santa Fe being up out of the great valley of the Territory is especially blessed as to summer temperature. The highest record by the thermometer in this city in twenty-six years was 96° in 1887—an extreme rarely approached. In the last ten years 91° was the highest absolute temperature. It should be borne in mind that in a dry climate the record of the metallic thermometer does not indicate the real temperature felt by a human body, which is cooled by the drying effect of the air. It has been demonstrated that a temperature of 90° at Santa Fe is not more oppressive and heating than 72° at St. Louis, or at any place with a humid climate.

The following table was made up from reports of the climate and crop service of the Weather Bureau, and gives a general idea of the relative intensity of heat as indicated by the metallic thermometer:

Station.	Mean temperature.				Mean relative humidity.
	8 a.m.		8 p.m.		
	Absolute.	Sensible.	Absolute.	Sensible.	
Boston	60	56	62	58	79
Buffalo	59	54	62	56	71
Chicago	57	53	63	56	72
Cincinnati	60	56	69	60	70
Denver	51	46	67	54	57
Des Moines	53	51	63	57	77
Detroit	56	53	61	56	78
Galveston	78	74	81	74	76
Kansas City	58	55	67	61	78
Memphis	66	61	77	66	66
New Orleans	74	71	79	72	79
New York	61	58	65	60	80
Philadelphia	64	59	68	61	72
St. Louis	61	58	70	63	77
San Francisco	56	54	60	56	84
Santa Fe	52	47	66	52	56
Washington	64	60	68	63	78

SANTA FE IN SUMMER.

Were Santa Fe located in sight of St. Louis or Chicago, with its present elevation, residents of such place would behold a city more than a mile and a quarter skyward, above the hot, malarial, moisture-soaked earth, in a purer atmosphere, which all would seek. Should they behold the city where she is, they would find a still cooler and purer atmosphere, where there is little moisture, a porous soil to drain away the rain that comes, and a precipitous descent for escape of the snow-fed streams and gorges in sight of the city.

The records show that no other city in the same latitude possesses so cool a summer temperature as Santa Fe, where the average is 67 degrees, and the change between night and day temperature too slight to be detrimental to health. Thanks to elevation, to wooded mountains far southward, and shelter from the hot winds of Arizona that are warded off by the rising series of mountain ranges between Santa Fe and the sandy, lower levels of desert, this city throughout the summer is the coolest south of the upper lake region. It is far cooler than Denver, has thermometer readings about as low as San Diego, and is free from the humid heat of the coast.

THE WINTER SEASON.

One who has not seen the lay of the land might think that an elevated place having so delightful a summer climate would have a severe winter. Yet this is not true. The winter temperature is not so low as in the lower Ohio valley, and is free from moisture, there being less of cloudy weather in winter than in summer. To the north, the great mountains of Colorado receive the greatest snowfall, and break the force of northern winds; other mountains closer stand guard to shelter the Santa Fe valley, which lies at their feet. To the east a range keeps out the cold northers as they rush southward to Texas. Westward, also, nature has interposed barriers to shield New Mexico from gales, and when a wind finds its way up the winding Rio Grande, Santa Fe receives but the feather-edge of the blow.

NEW MEXICO SANITARIUMS.

Sunny, bright days mark the winter season, which, until Christmas at least, is quite as delightful as the glorious summer, though crisp and cool. Even the spring months in Santa Fe can not be equaled for mildness in any Eastern State. While hundreds of tourists visit the city in summer and make a more or less protracted stay, the number who come to remain permanently for the curative effect upon tuberculous diseases is all the while increasing. The proportion of the latter will be undoubtedly enlarged in consequence of the indorsement given New Mexico's climate by the United States Marine-Hospital Service, which has in 1899 established two permanent sanitariums in the Territory and will maintain them as homes for soldiers and sailors afflicted or threatened with tubercular troubles. Many years of life at New Mexico army posts and a careful examination by experts led the authorities to take this action in the interest of military invalids, and it is also intended to remove to New Mexico consumptive inmates of Soldiers' Homes in California and Eastern States.

Favorable conditions exist all over New Mexico for restoration to health or for improving the condition of such sufferers; a dry, aseptic air, light atmospheric pressure, well-drained soil, a minimum of cold and heat, the absence of great changes in temperature, and a maximum of sunshine.

SUNSHINE RECORDS.

As to the latter point, the latest figures available from the Government records are those of 1897, the year book of 1898 having not yet been published. The summer of 1897, as it happened, was unusually cloudy and rainy at Santa Fe, yet the superiority of this city in the matter of days that were sunny throughout can be seen by a few comparisons with places in various parts of the country.

Stations.	Temperature.		Percentage sunshine.	Precipitation.	Number of days—			
	Maximum.	Minimum.			Clear.	Partly cloudy.	Cloudy.	Rainy, .01 inch or more
Boston	94	2	58	40.77	133	70	162	121
Buffalo	95	0	....	37.72	65	145	155	156
New York	91	5	59	44.27	130	108	127	135
Philadelphia	96	7	60	42.04	105	124	136	133
Chicago	95	−20	50	25.85	187	114	114	125
Kansas City	102	− 4	57	30.21	144	111	110	100
St. Louis	101	− 2	64	40.17	151	90	124	115
Cincinnati	98	−10	58	43.89	162	99	104	121
Memphis	100	10	....	46.03	160	108	97	106
Denver	96	−14	68	5.37	98	180	87	89
Santa Fe	85	− 1	70	20.40	176	149	40	120
El Paso	102	17	....	12.41	195	128	42	51

NOTE.—The minus sign (−) used before figures above indicates below zero.

The Government records do not show that any place in the United States excels Santa Fe in sunshine, year in and year out, the average number of hours of sunshine daily in a period of five years being seven hours and forty-five minutes, which is just about right for variety, comfort, and health.

A favorable point in comparison with the East is that the most sunshine here is in the fall and winter, November leading, while in the East the sun is more in evidence in the summer months, when it is sometimes neither wanted nor needed.

GOOD ADVICE TO CONSUMPTIVES.

A short time ago Dr. John Tascher, with his wife and daughter, left Albuquerque to enjoy a few weeks among Chicago relatives and friends. While at Chicago the doctor left for Washington, and while in the national capital was interviewed as follows by a representative of the Washington Post:

Dr. Tascher said:

Consumptives who go to New Mexico should make it their business to get well. They should have money enough to keep them from worrying. They should go there for rest and not for sight-seeing. Above all else, they should disabuse their minds of the idea that they will get well in a month, or three months, or six months. It takes longer than that. They should be free from bother. This they can not be if they are looking for employment. There are twenty applicants for every job that is vacant. Then, again, sick people do not want work. They should be free to use reserve strength in casting off the disease. New Mexico will be the greatest health resort in the world. It has the best advantages. The climate is the best in the world. We have more mineral springs, containing different healthful properties, than any other place known in any part of the civilized world, none excepted. I have visited all of the famous health resorts and know that none of them has the advantages possessed by New Mexico.

Five years ago Dr. Tascher was a practicing physician in Chicago. He contracted consumption. He came to New Mexico. For the first two years and a half he did not get better. He lost in weight and in general health. He remained here, however, as he says, to get better. To-day he is robust. He weighs more than he ever did before in his life. He has had no trace of the disease for over a year. He went back to his old home and surprised his friends by his altered appearance. They expected to attend his funeral. Instead, if appearances are to be relied upon, he will outlive his old friends.

THE TAOS VALLEY.

The Taos Valley is a natural basin, about 25 miles broad and 35 miles long. It is entirely surrounded by mountains, the Sangre de Cristo Range on the north, east, and south and the Continental Divide on the west. It is one of the best watered and drained portions of New Mexico, the Rio Grande flowing through its center from north to south.

THE COUNTY SEAT.

Taos, the county seat, has about 1,500 inhabitants, 2 hotels, 3 churches, and 3 schools. It is a typical adobe town, and reminds travelers of Egypt. Taos is situated on the southwestern slope of a spur of the Sangre de Cristo Mountains.

PRECIPITATION.

The average precipitation in the Taos Valley is about 10 inches per year. The soil is a sandy loam. Eight never-failing streams flow through the valley from the mountains to feed the Rio Grande.

ALTITUDE AND SUNSHINE.

The altitude is about 6,300 feet, and this makes it an ideal resort for invalids; warm, bright, sunshiny days and cool nights. The roads are good for driving, riding, and bicycling. Fishing and hunting are unexcelled. In fact, it is an ideal place for one who wishes to recuperate. The climate and drainage are perfect. Good hotels, with plenty of good, nutritious food, are located in the town. Farming and fruit and stock raising offer advantages for those who desire a permanent place to locate.

A SALUBRIOUS DISTRICT.

Typhoid and malaria are unknown, and it seems to be a country of longevity. Here we see many men and women from 80 to 100 years old. Acute diseases are almost unknown.

AN HISTORIC REGION.

It is a safe estimate to say that there are over 300 sunshiny days in a year in the Taos Valley. The tourist and health seeker will find here many things to interest them, particularly the Taos pueblo, called by Lummis "The American Pyramids." Here one can study the customs of centuries ago, folklore tales, and try to fathom out the secrets of the "kivas" or council chambers and many ceremonial functions and mystic dances. Here one can find rest from the daily monotony of an active life and recuperate his gray matter. It is an ideal spot for a summer's outing and will compare favorably with a trip to Egypt, while not taking up so much time and being less expensive.

EASY OF ACCESS.

There are many hot springs scattered throughout the county, affording fine bathing facilities. The Taos Valley is easy of access by daily stage, either via Embudo or Tres Piedras, stations on the Denver and Rio Grande Railroad.

THERMAL SPRINGS OF NEW MEXICO.

Excepting the famous Yellowstone National Park, situated in the northwest corner of Wyoming, there is no other locality outside the Territory of New Mexico that contains so many natural thermal springs. This fact is not generally known throughout the States, and I avail myself of the opportunity to say a few words about these health shrines of nature's own furnishing, so frequently sought by the unfortunate sufferer from disease. Many persons not informed upon the natural resources of their own country annually flock abroad to seek relief from the waters of the various European "spas." Many of these persons might be induced to visit the great natural springs so numerous in this Territory could the matter of their medicinal merit be brought to notice in such a way as to show them that what they seek abroad can readily be found at home, and that in curative properties the natural mineral springs of New Mexico excel many of those of European repute.

Accurate analyses made by competent chemists show the composition of most of the springs found in New Mexico to be superior in many respects to those enjoying the highest reputation in Europe and in other countries. Many of these places are far removed from the general line of travel, but those best known to-day are easily accessible to the tourist and health seeker, and are reached by good roads and stage lines. Many of them are equipped with modern hotels and bathrooms, good food, good service, healthful surroundings; in fact, ideal conditions to carry out a line of treatment where regularity, isolation, physical and mental rest are important factors. It would be a work of supererogation to attempt an enumeration of the many afflicted persons who have visited these springs, taking a course of the waters, and returning to their homes greatly benefited in health. A glance at the chemical composition of many of these waters will show that they compare favorably with many of those most sought in various parts of the world.

The geologic processes are so recent in New Mexico that nearly every county in the Territory has its healing, hot, or mineral springs. The purpose of this article is only to give a few facts concerning the more accessible resorts. Many important places are necessarily omitted, because the average tourist would be unable to visit them.

In geograpical order the first to be mentioned are—

FOLSOM HOT SPRINGS.

Situated near Alps, a station on the Denver, Fort Worth and Texas Railroad, 59 miles south of Trinidad, on the summit of the Raton range of mountains, close to the extinct volcano of Capulin, in Colfax County, near the northern boundary of the Territory. The altitude is about 6,500 feet, and the location is very beneficial for consumptives. They have fine medicinal properties and promise to become of prominence.

LAS VEGAS HOT SPRINGS.

In San Miguel County, at the mouth of the picturesque Gallinas Canyon, on the banks of the Gallinas River, is situated the Las Vegas Hot Springs, famed throughout the length and breadth of the land for their curative virtues in innumerable diseases.

The springs are twenty-two in number, and from analyses made by Prof. F. V. Hayden, of the United States Geographical Survey, the following is extracted:

Constituents.

	1.	2.	3.
Sodium carbonate ....per cent..	1.72	1.1	5
Magnesium carbonate ....do....	1.08	10.6	10.43
Sodium sulphate ....do....	14.12	15.43	16.21
Sodium chloride ....do....	27.26	24.37	27.34
Potassium ....do....	Trace.	Trace.	Trace.
Lithium ....do....	St. trace.	St. trace.	St. trace.
Silicic acid ....do....	1.04	Trace.	2.51
Iodine ....do....	Trace.	Trace.	Trace.
Bromine ....do....	Trace.	Trace.	Trace.
Temperature ....degrees F..	130	123	123

In its chemical composition this water resembles in many respects the waters of the famous hot springs of Teplitz, in Austria, while in its two chief active constituents, the carbonate and sulphate of sodium, it may recall the somewhat analogous, though very much stronger, waters of Carlsbad, justifying in a degree the name often given it of "dilute Carlsbad water." The dilution, however, is more frequently a benefit than a disadvantage, for it permits a larger amount of the water to be taken, thus securing the valuable solvent and eliminating powers of the water itself, together with the remedial virtues of its mineral constituents.

OJO CALIENTE (HOT SPRINGS).

These celebrated hot springs are located in the midst of the ancient Cliff Dwellers, 25 miles west of Taos and 50 miles north of Santa Fe, N. Mex., and about 12 miles from Barranca Station, on the Denver and Rio Grande Railway, from which point a daily line of stages run to the springs. The temperature of these waters is from 90° to 122° F. The gases are carbonic. Altitude, 6,000 feet; climate very dry and delightful the year round. There is now a commodious hotel for the convenience of invalids and tourists, and the reputation of these wonderful medicinal waters is fast spreading. These waters contain 1,686.34 grains of alkaline salts to the gallon, being the richest alkaline hot springs in the world. An analysis of these waters shows a total of 288.09 parts in 100,000, divided as follows:

Sodium carbonate	196.95
Calcium carbonate	4.20
Iron carbonate	20.12
Sodium chloride	40.03
Arsenic	10.08
Lithium carbonate	1.22
Magnesium carbonate	6.10
Potassium sulphate	5.29
Silicic acid	4.10

JEMEZ HOT SPRINGS

Are in Bernalillo County, in Santiago Canyon, being a branch of the Jemez Creek, which 9 miles south connects with another branch running through Guadaloupe Canyon. To reach them one has to travel from Santa Fe by wagon road to Peña Blanca, 27 miles distant west, crossing the Rio Grande there, and thence keeping a western course through the foothills of the Valles Mountains to Jemez pueblo, 26 miles; from there it is 13 miles to the first group of springs, at Archuleta post-office; or from Bernalillo, on the Atchison, Topeka and Santa Fe Railroad; also by wagon road past Santa Ana and Zia (or Silla) pueblos to San Ysidro and thence to Jemez pueblo, where this road and the former join, distant 27 miles.

Both roads are sandy, but the latter especially so, running for about 13 miles through Jemez Canyon.

A much better road, running from Archuleta north and northeast through the mountains and ending at Espanola, has recently been constructed.

There are several groups of hot springs in Santiago Canyon, but those at Archuleta, and 2 miles farther north, are most frequented. At Archuleta are ample hotel accommodations. Many health seekers prefer the "upper group" and camp there. At both places the scenery is enchanting and the atmosphere dry and healthy.

The lower springs, at Archuleta post-office, have an altitude of 6,620 feet above sea level. Limestone and sandstone of the Carboniferous age form the sides of the canyon, 1,000 feet high, often changed from their original position by volcanic substances. There are here:

1. A geyser with an opening of 1 square foot, a temperature of 168° F., running about 50 gallons a minute, with escaping carbonic acid and deposits of white carbonate of lime.

2. A spring of 130° F. with free carbonic acid and red-brown deposits.

3. A spring of 119° F. with "alga" (cryptogamic water plants). A black sulphate of iron forms on them, a result of the action of sulphureted hydrogen upon carbonate of iron and oxide of iron in the alga. The sulphureted hydrogen is a product of the reduction of gypsum.

There are more springs with a temperature from 102° to 108° F. The total salts in 100 parts of water amount to 0.2401 parts of sodium, lime, and magnesia. These springs are especially beneficial to rheumatic diseases.

The upper group, 2 miles from Archuleta, in the same canyon, consists of 42 springs. Their elevation is about 6,740 feet above sea level and their temperature varies from 70° to 105° F.

They flow from caves of carbonate of lime, some of which are 20 feet in height. Combined they form a dam or dike 30 feet high and 200 feet long. The springs contain 37.26 parts solids in 100 parts water, mostly chloride of sodium and sulphate and carbonate of soda, lime, and magnesia. They greatly resemble the famous Marienbad.

Besides the hot springs, north of the upper group are cold mineral springs. Halfway between the two groups is an extensive ruined pueblo.

CHERRYVILLE SPRINGS.

In Socorro County, at Cherryville, is the next occurrence of noted springs. These are found near the head of the cañada or falls of the Alamosa, whence Geronimo started out on his famous raid. They are accessible by stage from Engle, a station on the Atchison, Topeka and Santa Fe Railroad. They are on the eastern slope of the Black Range. The temperature is 130° F. and the altitude 6,540 feet.

GILA HOT SPRINGS.

In the southwestern part of Socorro County, on the west of the Gila or Diamond Creek, as it is called, is a group of springs, at 5,545 feet altitude, that are easily reached by wagon from Silver City. The temperature is 130° F. and they carry similar ingredients to the Jemez Springs.

APACHE TAJOE SPRINGS.

Four miles from Whitewater, on the Atchison, Topeka and Santa Fe Railroad, are also found some good springs of 97° F. They are in Grant County, 30 miles north of Deming.

Twenty-four miles north from Deming, and within 3 miles of Hudson, on the Santa Fe road, are several good springs. These springs are widely known and much frequented, both on account of their medicinal value and the lovely climate and beautiful scenery.

Some other undeveloped springs are about 3 miles north of Hudson Hot Springs.

It remains to be said that close to the western boundary of the Territory are several other locations of hot springs, of which one is about 10 miles southwest of Zuni and one in the valley of the San Francisco River, the latter at an altitude of 5,630 feet above sea level and having an average temperature of 84° F., largely used by the Indians and the people of the vicinity.

HUDSON HOT SPRINGS.

In the Hudson Hot Springs, New Mexico possesses a water which for its curative properties rivals the famous Carlsbad waters of Europe. Indeed, there is living evidence that the Hudson Hot Springs have cured ailments to which the waters of Carlsbad offered no relief.

The Hudson Hot Springs are situated 25 miles from Silver City on a plateau 5,000 feet above the level of the sea. The Hotel Casa del Consuelo is a large, magnificent structure, built on the old Spanish style, being one story high, having three sides built around the plaza. Every one of the 67 rooms are outside rooms, which assures perfect ventilation and hygienic results. The rooms are large, with tall ceilings, and are equipped with all modern sanitary appliances and conveniences. Bathrooms and closets and stationary washstands are scientifically constructed with the best plumbing. Each room, too, is heated with hot water, which comes direct from the spring, which has a temperature of 142° F. This temperature is maintained the year round, and that of the room can be regulated according to the desire of the occupant.

The climate of New Mexico, which in the vicinity of the Hudson Hot Springs is found at its best, is directly beneficial to a patient suffering from almost every disease that flesh is heir to. There are 900 feet of broad veranda on the three sides of the hotel. Here the visitors promenade, deriving beneficial results from the absolutely pure atmosphere, or lounge about in settees or rockers, reading and conversing. The culinary department is presided over by an accomplished chef, who appreciates and caters to the delicate tastes of the guests. The dining room is large and commodious, capable of seating 200 persons. There are billiard parlors, reading rooms, where all the magazines and metropolitan papers are on file, barber shop, whist rooms—indeed everything necessary to the convenience and comfort of the patrons of the house.

The bath house, which is located in the Avenue of Oaks, about 100 yards from the hotel proper, is constructed after the most improved plans. There are 14 bathrooms equipped with the finest porcelain bath tubs, the best of plumbing, and are presided over by experienced masseurs and bathroom attendants. The water may be used at any temperature desired by the patient. It is customary, however, to enter the water at a temperature of about 95°, increasing it to 120°. The bather is then placed under the shower bath and put on the table and rubbed by the masseur, then wrapped in blankets and placed on a cot, where he enjoys a restful and helpful sleep for a couple of hours or so.

The waters of the Hudson Hot Springs are of natural mineral properties, and are peculiarly adapted to the cure of rheumatism, stomach, kidney, liver, and bladder troubles. The following analysis, made by Prof. Arthur Goss in 1898 shows how closely the Hudson Hot Springs waters resemble the Carlsbad waters in constituent parts:

Total solids, 39.59 gr.	
Lime (CaO)	5.50
Magnesia (MgO)	1.46
Soda (Na_2O)	11.17
Potash (K_2O)	1.52
Iron and aluminum	.28
Silica (SO_2)	4.10
Sulphates (SO_3)	4.21
Carbonates (CO_2)	9.98
Chlorides (Cl)	1.77
	39.99
Less oxygen, eq-of-Cl	.40
	39.59

Temperature, 142° F.

The following testimonials are selected from many given in personal interviews with patrons of the hotel in May:

"For twenty years," said H. C. Moore, of El Paso, Tex., "I have been coming to these springs for relief from one of the most severe cases of inflammatory rheumatism. By remaining here two weeks each year and taking the baths, I am able to go through the remainder of the year a well man, and entirely free from the intense pains resultant from the disease. I have visited all the principal springs in the world, but never found relief until I came here. I wish that every rheumatic in the United States could come here for a few weeks and know what it is to go away well."

One of the most remarkable results of the efficacy of the Hudson Hot Springs water is seen in the condition of Mr. John D. McLeod, a merchant of Boston. "What I tell you," said Mr. McLeod, "will not be believed by the majority of your readers, yet what I say is true, and there are a dozen people here at these springs now by whom I can prove it. I was brought here on a cot, being unable to walk because of my several infirmities. In the first place, I had inflammatory rheumatism so that my head was bent forward until my chin rested upon my breast. For years I was forced to carry my head in that position. As you see, I am now able to carry it as a well person. When I came here the breathing capacity of my lungs was confined to the region of the apex. My chest was so sore that I could not bear the weight of my hand upon it. My lung expansion is now nearly two inches. My heart when I came here had 130 beats to the minute. It is now reduced to about 100. Instead of being carried about on a cot by reason of inflammatory rheumatism in my lower limbs, I am now able to walk two and three miles per day. Then I could not speak above a whisper; to-day I can shout as loud as a person in ordinary health; then, as I have said, I could not bear the weight of my hand upon my chest; to-day I can strike it with my clenched fist in this fashion," and Mr. McLeod administered a blow on his chest that would have knocked a well man several feet backward. "What has accomplished this miraculous cure?" asked Mr. McLeod. "The climate and these remarkable waters of Hudson Springs. The miracles of the early Christian days are not more marvelous than my recovery during the four months that I have been here. My doctor informs me, and I, too, am confident of the fact that if I continue to improve as I have been improving, I will be a well man within a year. These are facts, and if there is a person in the United States afflicted with the ills I have recounted, my advice is to come here; and if there is anybody who wishes to communicate with me by letter, I will gladly give them more details."

The scenery about Hudson Hot Springs is picturesque and romantic. Within two miles of the springs are the buried ruins of an ancient Aztec village. The City of Rocks, being a miniature city probably a mile square, built of rocks, with streets, alleys, etc., formed by nature's master hand, is within thirty minutes' riding distance of the hotel. Trips to the adjacent cattle ranches form a pleasant recreation for the guests.

The hotel and springs are owned and managed by Mr. T. C. McDermott, formerly of Minnesota. He is a genial host, taking watchful care of his guests, and rendering every assistance possible to the restoration of their health and to increase their daily comforts. The post-office address is Hudson Hot Springs, Hudson, N. Mex.

WONDERFUL SPRINGS.

S. S. McKibbon returned to Santa Fe recently after an absence of nearly a year at the Hot Sulphur Springs and Hugh Murray's San Antonio Springs, in the Valle Mountains, 40 miles west of Santa Fe. He stands as a living example of what those springs will do for a man who is sick nigh unto death. When he left here in July last none of his friends had any other idea than that he would die in ten days or so. He took 115 baths at the sulphurs and 20 at Murray's Springs and comes home with the glow of perfect health upon his face, a changed man in every sense. He says it is a shame that suffering humanity should be kept in ignorance of the remarkable curative powers of these medicinal waters. He states that they have been known to cure even cancer, and cites the case of one Riley, a carpenter at Bland, who came there a few weeks ago, his left side wholly paralyzed. Eleven baths restored him completely. There are about twenty persons at the sulphurs now. If the waters were properly advertised there would doubtless, he thinks, be as many hundred spending the summer there. By way of Buckman's Mill the distance from Santa Fe to these springs is 46 miles. Mr. McKibbon says the settlers of that entire region are anxious to do their trading with Santa Fe merchants, being able to do better here than at another point, and there is talk of improving the Buckman Mill road. Merchant Louis Zellhoffer passed over this road with a load of supplies the other day, and he says repairs on 6 miles of the road will make it passable for all manner of vehicles and insure to Santa Fe a lucrative business from that section.

AZTEC SPRINGS.

This is a cold-water spring situated 4 miles east of Santa Fe. From the surrounding hills and ridges a magnificent view is had of the country for many miles, including the city of Santa Fe, the valley of

Vandercook Eng. Co. Chi.

PUBLIC SCHOOL, SOCORRO.

the Rio Santa Fe, and portions of the valley of the Rio Grande del Norte, together with the magnificent mountain ranges in different directions.

Col. D. L. Huntington, surgeon, U. S. A., and curator to the United States Medical Museum, says of this spring: "The water contains 18 grains to the gallon of solid material, and it resembles many of the celebrated German springs, and would be found very useful in such diseases as catarrh of the bladder and all forms of dyspepsia and intestinal indigestion. The water is also useful as a gentle and constant tonic."

Anyalsis of this water made by F. W. Clark, chief chemist of the Smithsonian Institution, Washington, D. C., shows it o contain the following per 1,000 parts:

Silica	0.220
Carbonate of calcium	1.538
Magnesium	.605
Sodium chloride	.225

With enough carbonic acid gas to retain the carbonates of calcium and magnesium in solution as bicarbonates.

Such healing waters, taken in connection with the pure, dry, and bracing climate of the mountains, should surely prove a boon to those affected with many forms of disease, and the attention of physicians throughout the country is invited to the many merits they possess in the treatment of numerous forms of disease.

BUREAU OF IMMIGRATION.

Bureau of Immigration of New Mexico,
Office of the Secretary,
Santa Fe, July 1, 1900.

Sir: In compliance with your request, I have the honor to submit herewith the following report of the operations of the bureau of immigration for the year ending June 30, 1900:

During the past twelve months the business of the bureau has progressed much the same as during the twelve months preceding. One thousand copies of the Report of the Governor of New Mexico to the Secretary of the Interior upon the conditions and resources of the Territory for 1899 have been purchased by this bureau, and 820 copies thereof have been distributed during the year, being sent out to applicants for the same. During the same period about 3,000 pamphlets on the climate and hot springs of the Territory, published by this bureau, have been distributed in the same manner. About 4,000 pamphlets on mines and the mining industry of New Mexico, and about 2,000 pamphlets on horticulture, agriculture, and irrigation, have also been used for distribution.

This bureau was represented by a delegate, viz, its president, L. Bradford Prince, at the session of the trans-Mississippi congress at Houston, Tex., in April last; at the session of the mining congress in Milwaukee in June last, and at the session of the farmers' congress at Colorado Springs, Colo., in August last. At each of these sessions about 2,000 pamphlets of different kinds were distributed by the said representative to delegates and to those inquiring for them. During the national encampment of the Grand Army of the Republic in Chicago, Judge John R. McFie, commander of the department of New Mexico, distributed 1,000 pamphlets on climate, and also on mines and the mining industry, and horticulture and agriculture in the Territory, at the headquarters of his department, to such persons as visited the headquarters and applied for the same. The advertising that New Mexico has received in this manner is evidently doing a great deal of good. During the past year it is estimated that more tourists visited the Territory than ever before. There are now within its borders more health seekers than ever before. Several parts of the Territory have received considerable immigration during the past five months, and part of this immigration can be directly traced to the work done by this bureau and the distribution of pamphlets.

Everything indicates that more mining investors and more capitalists have visited New Mexico the past twelve months than at any time during the past sixteen years and since the New Mexico boom days of 1881, 1882, and 1883. This is pretty well demonstrated by the great activity in mining, in the organization of mining companies, and in the many sales of mining property that have taken place in New Mexico within the last twelve months.

There are now in process of preparation and in the hands of the printer pamphlets—one on climate and climatology which is about completed and will be ready for distribution within a few days; one on mines and mining in New Mexico, and others—descriptive of matters pertaining to horticulture, agriculture, sheep raising, and cattle growing in the Territory. There is also now being prepared by the undersigned a pamphlet on the general conditions and history of New Mexico, which, however, will not reach the public for some weeks. It is found that this pamphlet advertising, illustrated if possible and containing separate subjects, is the very best of its kind that can be had. It is also demonstrated that illustrated pamphlets, where such illustrations are appropriate, do more good than any other.

From its information the bureau estimates that the census will show a white population in the neighborhood of 200,000 in the Territory, as against 153,000 for the year 1890. This is believed to be much below the actual figures, but is probably as correct as can be had under the system of census enumeration adopted by the Government. The actual population this bureau estimates to be at the present time about 225,000 and probably more. There has been quite an increase in the counties of San Juan, Grant, Colfax, Chaves, Eddy, Dona Ana, and Otero. None of the counties have retrograded, and while a few of them have been stationary, nearly all will show some increase. It must be remembered that the census of 1900 contains the enumeration of but very few United States soldiers, whereas the census of 1890 contained quite a number of such.

The executive office of the bureau of immigration is located at Santa Fe, which is believed to be the most central and the best place for the office, as a great many tourists and health seekers come to Santa Fe, as also a great many people from the States who have business in the Territory, find it to their best interests to stop off and visit Santa Fe in order to become acquainted with the Territorial and Federal officers, and very often to transact official business at the capital.

The collection of a mineral exhibit has been commenced by the bureau for the purpose of having the same on exhibition in its offices at the capital. While the beginning is small and not much progress has been made up to date, it is believed that in the next few years a very fair mineral collection will be the result.

It is found from actual observation that one of the most valuable advertising documents that has been distributed by the bureau has been the report of the governor of the Territory for the past three years.

During the past twelve months about an average of 100 letters per month have been received asking information concerning the Territory, which have been answered in each case, with such information as it was possible to give. This, in addition to many requests for pamphlets and newspapers, all of which were promptly attended to. The business of the bureau is constantly on the increase, and the work of answering the letters of inquiry in the proper manner is becoming quite arduous.

I am, sir, very respectfully,

MAX. FROST,
Secretary of the Bureau.

Hon. M. A. OTERO,
Governor of New Mexico.

CAPITOL CUSTODIAN COMMITTEE.

SANTA FE, N. MEX., *September 8, 1900.*

YOUR EXCELLENCY: In reply to your inquiry of the 7th instant, directed to the capitol custodian committee, I beg to submit the following:

The building erected by the Territory for a capitol to replace the one destroyed by fire May 12, 1892, was completed and by the capitol rebuilding board turned over to the Territory on the 4th day of June, 1900, and this board received the building from your hands at the dedication upon that date.

The various Territorial officers—the governor, secretary, auditor, treasurer, solicitor-general, superintendent of public instruction, land commissioner, adjutant-general, Territorial librarian, and the supreme court officials—immediately occupied the offices which had been prepared for their use, and without an exception they have expressed themselves as having been provided with convenient and abundant accommodations for all of their official functions and duties. The halls provided for the council and house of our legislative assembly are such as have excited the admiration and encomiums of visitors from the Territory and abroad, and with their vaults, committee rooms, and lobbies can not but furnish the assembly with every convenience for facilitating the work of the legislature and the comfort and welfare of its members. The furniture in the building is of the most substantial character, and for the present answers every requirement.

We congratulate your excellency upon the completion of this grand building during your administration, marking as it does an epoch in the history of the Territory and evidencing the determination of the people of New Mexico to be with the advance of civilization in every respect.

Very respectfully, yours,

SOL. SPIEGELBERG,
President Capitol Custodian Committee.

Hon. MIGUEL A. OTERO,
Governor of New Mexico.

REPORT OF COMMISSION ON IRRIGATION AND WATER RIGHTS.

I beg to submit herewith report made to me by the above-named commission during the last legislative assembly held in Santa Fe, N. Mex., on January 16, 1899, which is as follows:

The undersigned, constituting the commission of irrigation and water rights in the Territory of New Mexico, appointed pursuant to the act of the legislative assembly approved March 18, 1897, respectfully submit the following report:

The law under which the commission was appointed is the following:

AN ACT creating a commission of irrigation and water rights. C. B. 127; approved March 18, 1897.

"*Be it enacted by the thirty-second legislative assembly of the Territory of New Mexico:*

"SEC. 1. A commission is hereby created to consist of the president of the council and the speaker of the house of representatives of the thirty-second legislative assembly of the Territory of New Mexico, three resident citizens of this Territory to be selected by said president and speaker jointly, which commission is hereby directed to inquire into the conditions existing in different portions of the Territory with reference to irrigation and water rights, to examine the laws upon this subject in force in this Territory and in other States and countries, and to recommend to the next legislative assembly such legislation as in the opinion of said commission shall meet all requirements on this subject.

"The members of the said commission shall meet within sixty days after the adjournment of the thirty-second legislative assembly at such place as they may agree upon and organize by the election of a president and secretary from among their number.

"It shall be the duty of such commission to embody in a report to the governor of the Territory all possible information concerning the subject of irrigation and water supply, the amount of land in the Territory cultivated by the means of irrigation, the extent of the present and proposed systems of storage reservoirs, and such other facts as they may deem proper and useful, which report shall be published at least twenty days before the beginning of the next session of the legislature.

"SEC. 2. The members of the commission hereby created shall serve without pay or compensation, but their expenses while actually engaged in the performance of the duties prescribed by this act shall be paid by the Territorial treasurer out of any available funds in his hands, and the Territorial auditor is hereby authorized and directed to draw his warrant upon the treasurer for such expenses upon certificates signed by the president and secretary of such commission.

"SEC. 3. This act shall take effect and be in force from and after its passage."

The members of the commission met at Santa Fe within the time prescribed by said act, and organized by electing Anthony Joseph president and Joseph E. Saint secretary. Meetings were subsequently held at Albuquerque on the 9th and 26th of October, 1898.

At the first of these meetings plans were adopted for carrying on the work devolving upon the commission, receiving reports of subcommittees and of the different members touching special matters referred to them, and at the latter meetings the material for the final report was fully considered and the text of the report formulated.

After dividing up the work of gathering information among the several members of the commission in the first instance, it was found that the examination of existing conditions in the Territory and the accumulation of the facts relating thereto would require an amount of work and a degree of technical knowledge which none of the members could furnish. After a careful consideration, and after consultation with the governor and obtaining his approval, we employed Mr. P. E. Harroun, an accomplished civil and hydraulic engineer, for a limited time, to make such investigation and report as was deemed necessary to enable us to comply with the law.

The investigations made by the several members of the commission and the facts set forth in Mr. Harroun's report have convinced us that the greatest need of New Mexico upon the subject of irrigation and water rights at the present time is not new legislation, but accurate information. Acting, as we have done, without compensation, it was not practicable for the members of the commission to devote any considerable time to the gathering of facts of the kind desired. These are only to be obtained by actual observation in the field, and to be of real service this can only be done by a trained observer familiar with the approved scientific methods of studying such a subject. The data bearing upon the flow of water in streams, variable as are those of New Mexico with the time of the year, the drainage area of localities favorable for the collection of surface and torrential waters for storage, and the quantities of land susceptible of reclamation by storage or additional irrigation by improved methods, can for the most part only be collected for practical use by systematic observation and record of facts, often extending through months and years. The facts presented in this report are, as to a large part of the Territory, necessarily general, and not based upon the systematic study above alluded to. In the northeastern and southeastern parts of the Territory, where the Maxwell and Pecos companies, respectively, have constructed extensive irrigation systems on a large scale and according to modern scientific methods, it is possible to secure reliable and instructive data. In the greater part of the Territory, however, the lack of detailed observation and systematic record prevents anything more than a fair general statement of conditions and results at the present time. No work of this kind has ever been done by the Territory. The small amount of it that has been done by the Government has been confined to the Rio Grande Valley.

While, therefore, the members of the commission feel that they have accomplished about as much as was reasonably practicable under the circumstances, they regard their report as suggestive of what might be done by a better organized effort, rather than as of any great permanent value in itself.

There are certain matters now requiring attention, of vast importance as regards the future of the Territory, which seem to us to imperatively call for further and more complete investigation in the line of the work intrusted to us:

First. The selection of lands donated by Congress to New Mexico in aid of irrigation and the reclamation of arid lands, and for the maintenance of educational and other institutions.

The law making this donation, enacted June 21, 1898, is as follows:

"AN ACT to make certain grants of land to the Territory of New Mexico, and for other purposes.

"*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That sections numbered sixteen and twenty-six in every township of the Territory of New Mexico, and where such sections, or any parts thereof, are mineral or have been sold or otherwise disposed of by or under the authority of any act of Congress, other nonmineral lands equivalent thereto, in legal subdivisions of not less than one-quarter section, and as contiguous as may be to the section in lieu of which the same is taken, are hereby granted to said Territory for the support of common schools, such indemnity lands to be selected within said Territory in such manner as is hereinafter provided: *Provided*, That the sixteenth and thirty-sixth sections embraced in permanent reservations for national purposes shall not at any time be subject to the grants of this act, nor shall any land embraced in Indian, military, or other reservations of any character be subject to the grants of this act; but such reservations shall be subject to the indemnity provisions of this act.

"SEC. 2. That fifty sections of the unappropriated nonmineral lands within said Territory, to be selected and located in legal subdivisions as hereinafter provided in this act, shall be, and are hereby, granted to said Territory for the purpose of erecting public buildings at the capital of the State of New Mexico when said Territory shall become a State, and be admitted into the Union, when said capital shall be permanently located by the people of New Mexico for legislative, executive, and judicial purposes.

"SEC. 3. That lands to the extent of two townships in quantity, authorized by the sixth section of the act of July twenty-second, eighteen hundred and fifty-four, to be reserved for the establishment of a university in New Mexico, are hereby granted to the Territory of New Mexico for university purposes, to be held and used in accordance with the provisions in this section; and any portions of said lands that may not have been heretofore selected by said Territory may be selected now by said Territory. That in addition to the above, sixty-five thousand acres of nonmineral, unappropriated, and unoccupied public land, to be selected and located as hereinafter provided, together with all saline lands in said Territory, are hereby granted to the said Territory for the use of said university, and one hundred thousand acres to be in like manner selected, for the use of an agricultural college. That the proceeds of the sale of said lands, or any portion thereof, shall constitute permanent funds, to be safely invested, and the income thereof to be used exclusively for the purposes of such university and agricultural college, respectively.

"SEC. 4. That five per centum of the proceeds of the sales of public lands lying within said Territory which shall be sold by the United States subsequent to the passage of this act, after deducting all expenses incident to the same, shall be paid to the said Territory, to be used as a permanent fund, the interest of which only shall be expended for the support of the common schools within said Territory.

"SEC. 5. That the schools, colleges, and university provided for in this act shall forever remain under the exclusive control of said Territory, and no part of the proceeds arising from the sale or disposal of any lands herein granted for educational purposes, or of the income thereof, shall be used for the support of any sectarian or denominational school, college, or university.

"SEC. 6. That in lieu of the grant of land for purposes of internal improvement, made to new States by the eighth section of the act of September fourth, eighteen hundred and forty-one, which section is hereby repealed as to New Mexico, and in lieu of any claim or demand of the State of New Mexico under the act of September twenty-eighth, eighteen hundred and fifty, and section two thousand four hundred and twenty-nine of the Revised Statutes, making a grant of swamp and overflowed lands, which grant it is hereby declared is not extended to said State of New Mexico, the following grants of nonmineral and unappropriated land are hereby made to said Territory for the purposes indicated, namely:

"For the establishment of permanent water reservoirs for irrigating purposes, five hundred thousand acres; for the improvement of the Rio Grande in New Mexico, and the increasing of the surface flow of the water in the bed of said river, one hundred thousand acres; for the establishment and maintenance of an asylum for the insane, fifty thousand acres; for the establishment and maintenance of a school of mines, fifty thousand acres; for the establishment and maintenance of an asylum for the deaf and dumb, fifty thousand acres; for the establishment and maintenance of a reform school, fifty thousand acres; for the establishment and maintenance of normal schools, one hundred thousand acres; for the establishment and maintenance of an institution for the blind, fifty thousand acres; for a miner's hospital for disabled miners, fifty thousand acres; for the establishment and maintenance of a military institute, fifty thousand acres; for the enlargement and maintenance of the Territorial penitentiary, fifty thousand acres. The building known as the Palace, in the city of Santa Fe, and all lands and appurtenances connected therewith and set apart and used therewith, are hereby granted to the Territory of New Mexico.

"SEC. 7. That this act is intended only as a partial grant of the lands to which said Territory may be entitled upon its admission into the Union as a State, reserving the question as to the total amount of lands to be granted to said Territory until the admission of said Territory as a State shall be determined on by Congress.

"SEC. 8. That all grants of land made in quantity or as indemnity by this act shall be selected by the governor of the Territory of New Mexico, the surveyor-general of the Territory of New Mexico, and the solicitor-general of said Territory, acting as a commission, under the direction of the Secretary of the Interior, from the unappropriated public lands of the United States within the limits of the said Territory of New Mexico.

"SEC. 9. That said commission shall proceed, upon the passage of this act, to select said lands, for each purpose as hereinbefore designated, in legal subdivisions, of not less than one-quarter section, and shall report to the Secretary of the Interior such selections, designating in such report the purpose for which such bodies of land as selected are to be respectively used as provided above in this act.

"SEC. 10. That the lands reserved for university purposes, including all saline lands, and sections sixteen and thirty-six reserved for public schools, may be leased under such laws and regulations as may be hereafter prescribed by the legislative assembly of said Territory; but until the meeting of the next legislature of said Territory, the governor, secretary of the Territory, and the solicitor-general shall constitute a board for the leasing of said lands; and all necessary expenses and costs incurred in the leasing, management, and protection of said lands and leases may be paid out of the proceeds derived from such leases. And it shall be unlawful to cut, remove, or appropriate in any way any timber growing upon the lands leased under the provisions of this act, and not more than one section of land shall be leased to any one person, corporation, or association of persons, and no lease shall be made for a longer period than five years, and all leases shall terminate on the admission of said Territory as a State; and all money received on account of such leases in excess of actual expenses necessarily incurred in connection with the execution thereof shall be placed to the credit of separate funds for the use of said institutions, and shall be paid out only as directed by the legislative assembly of said Territory, and for the purpose indicated herein. The remainder of the lands granted by this act, except those lands which may be leased only as above provided, may be sold under such laws and regulations as may be hereafter prescribed by the legislative assembly of said Territory; and all such necessary costs and expenses as may be incurred in the management, protection, and sale of said lands may be paid out of the proceeds derived from such sales; and not more than one-quarter section of land shall be sold to any one person, corporation, or association of persons, and no sale of said lands or any portion thereof shall be made for less than one dollar and twenty-five cents per acre; and all money received on account of said sales, after deducting the actual expenses necessarily incurred in connection with the execution thereof, shall be placed to the credit of separate funds created for the respective purposes named in this act, and shall be used only as the legislative assembly of said Territory may direct, and only for the use of the institutions or purposes for which the respective grants of land are made: *Provided*, That such legislative assembly may provide for leasing all or any part of the lands granted in this act on the same terms and under the same limitations prescribed above as to the lands that may be leased only, but all leases made under the provisions of this act shall be subject to the approval of the Secretary of the Interior, and all investments made or securities purchased with the proceeds of sales or leases of lands provided for by this act shall be subject to like approval by the Secretary of the Interior.

"SEC. 11. That there is hereby appropriated from the unexpended funds in the Treasury of the United States, ten thousand dollars, or so much thereof as may be necessary, to be expended under the direction of the Secretary of the Interior, for the purpose of paying the expenses of the selection and segregation of said respective bodies of land, including such compensation as the Secretary of the Interior may deem proper.

"SEC. 12. That all acts and parts of acts in conflict with the provisions of this act, whether passed by the legislative assembly of said Territory or by Congress, are hereby repealed."

It will be apparent to everyone acquainted with the conditions existing in New Mexico that the location and selection of these lands is going to be a matter of enormous importance, and that it will depend solely upon an intelligent selection whether they shall ultimately become salable or productive of income by way of rental so as to accomplish the purposes for which the law is designed. There are large quantities of public land in the Territory which never will become salable at the price fixed by the law, and which could not be leased for any appreciable interest on that price, especially with the restriction as to quantity of land to be leased or sold to any one person. On the other hand, there are many localities where lands will ultimately attain the maximum value of farming lands by reason of their proximity to eligible sites for future water-storage and irrigation systems. To be of permanent value, a large part of the donated land ought to be selected with reference to their future reclamation in this way. For such selections there is at the present time no reliable guide. The information in possession of the United States surveyor-general would not suffice for this purpose. Nothing short of an examination by competent hydraulic engineers would furnish the facts which are absolutely essential.

Second. The injury to the people of New Mexico by the increased and constantly increasing appropriation of water from the head tributaries of the Rio Grande in Colorado.

Sooner or later this is bound to become an interstate question, and in order that the interests of New Mexico shall be properly guarded it will be essential that her representatives be armed with absolute and accurate information touching the flow of water in the Rio Grande and its tributaries, covering not only present conditions, but an accumulation of statistics as to the past. Colorado, with its well organized and liberally supported State engineering department, has a great advantage over us in this respect. Nothing short of a systematic study of these matters, continued through several years, will be adequate to enable us to meet this question when it comes to an issue.

Third. Possible future legislation.

The interests of irrigation are not uniform throughout the Territory on account of the wide differences in latitude, elevation, and character of productions. This is why, as we show further on, any attempt at legislation beyond the general principles already well established is not advisable at the present time. It is impossible, with the information now in hand, to determine beforehand whether any given scheme of legislation desired by and applicable to one part of the Territory may not be the cause of great injury and injustice to another. To enable future legislators to exercise their proper and only legitimate function, viz, that of enacting laws for the benefit of the whole people, the information which might be accumulated by further systematic investigation of these water questions will be absolutely necessary.

One of the duties imposed upon the commission by the act creating the same was the examination into the laws with reference to irrigation and water rights in force in New Mexico, and in other states and countries, and to recommend such legislation as, in the opinion of the commission, will meet all requirements of this subject.

Serious attention has been given to this branch of their duties by the members of the commission, who have brought to their aid the experience and advice of many of the prominent citizens of the Territory and elsewhere, deeply interested in the study and possibility of irrigation. One of the most serious impressions resulting from a study of this branch of the commission's labors is that great embarrassments or losses will almost inevitably occur in making any change that trespasses upon the general system of laws now in force; a very large part of our people, thoroughly understanding the rights which they now have in and to waters beneficially used by them, are strongly distrustful of any proposed change thereof, the demonstration of the result of which they have not seen in practical working. There is a widespread and largely justifiable impression prevailing that the result of changing the present irrigation laws of the Territory in any essential respect would be to disturb vested rights, and to unsettle public confidence in legal rights which have long been owned and beneficially used in the great portion of the waters of our streams. For this reason it was determined by the commission, after thoroughly canvassing the subject at its first meeting, that any and all recommendations from the commission along this line should be of the most conservative character, and that, before any change in the laws was recommended, there should be a close study of the laws and methods of enforcing them as now existing, and unless it was apparent that changes could be recommended which would be of considerable advantage to the public at large, it would be better to recommend that no changes whatever be made. With this spirit the commission, through its committees, entered into the task of the analysis of the present laws of the Territory. These were found to consist of certain Territorial statutes, of several acts of Congress, and of principles announced by the supreme court of the Territory independent of statute.

The first statutory law we have on the subject is the provision of the Kearny Code of 1846, to the effect that all laws in force at the time of the promulgation thereof, concerning water courses, should continue in force. Kearny Code, September 22, 1846, Tit. Water Courses. Sec. 1. (Compiled Laws, 1897, page 89.)

This reference was, undoubtedly, to the Spanish-Mexican laws then in force with reference to the control of water; and, while the commission has not seen fit to go into a special study of the laws thus referred to, it is believed that such reference thereto was intended to apply to the system of community ditch laws, which at that time regulated the rights of the owners thereunder in this Territory, in common with the great body of Mexican possessions in the arid section, and that, at such time, almost all rights claimed by the citizens of New Mexico in the waters of any of its streams were by virtue of such community laws, and that the individual rights of private owners of ditches had not at that time assumed such value as to attract the necessity of legislation to protect the same.

The assumption that the language referred to in the Kearny Code was directed particularly to rights owned under the community system received additional strength from the fact that the legislative assembly of 1851 and 1852, following close upon the promulgation of the Kearny Code, adopted a set of laws with reference to the community ditch system, which laws were largely the crystallization into statutes of the principles theretofore governing such questions, and the customs arising thereunder. Act of July 20, 1851, page 189. Act of January 7, 1852, page 276. (Compiled Laws, 1865, chap. 1, secs. 1-8. Id., secs. 9-26.)

It is to the Spanish-Mexican laws, therefore, and to legislative enactments beginning in 1851, continuing more or less to the present time, that we owe the present acequia laws of the Territory. The continuance of this system, admirably adapted to the necessities of the people living in the most thickly inhabited parts of the Territory, has been productive of good results where the spirit of the law has been enforced.

Amendments to the laws of 1851 and 1852 were enacted in 1861, regulating the working on public acequias. Act of January 29, 1861. (Compiled Laws, 1865, secs. 27–32.) Also, in 1863, regulating the control of ditches by overseers. Act of January 28, 1863. (Compiled Laws, 1865, secs. 33–39.) Also, in 1866, regulating the repair and relocation of ditches when injured or destroyed by floods. Act of January 18, 1866, pages 90–96. (Compiled Laws, 1897, chap. 1, secs. 25–30.)

In 1874 the legislature extended the right to all persons to construct private acequias and take water therefor from any available source, with a provision for compensation of the owners of the land through which the necessary ditches were constructed; and simple and inexpensive methods were prescribed by which such terms should be assessed and such rights recognized. Act of January 9, 1874, page 28. (Compiled Laws, 1897, chap. 1, secs. 23, 24.)

On February 24, 1887, an act was passed, applicable only to corporations, providing for the organization of such for the purpose of constructing and maintaining reservoirs canals or ditches, and pipe lines, in order to supply water for irrigation, mining, manufacturing, domestic and other public uses, including cities and towns, and for the purpose of colonization and improvement of lands in connection therewith. This act gave full authority to corporations formed thereunder to acquire water and water rights, either by purchase or condemnation, and to construct ditches, canals, and reservoirs to be used in connection therewith. Laws of 1887, chap. 12, page 29. (Compiled laws, 1897, chap. 1, secs. 468–493.)

On February 20, 1889, an act was also passed providing that incorporated towns and villages exceeding in population 3,000 persons should have certain priority for the use of water in streams upon or near which they are situated. Laws of 1889, chap. 70, page 150.

On February 26, 1891, another act was passed providing a method by which a record of the subsequent construction or enlargement of any ditch, canal, or feeder for a reservoir taking water from a natural stream should be made, and by which legal appropriation of water should be made, and defining in some particulars the essentials of such legal appropriation. Laws of 1891, chap. 71, page 130. (Compiled Laws of 1897, secs. 493, 494.)

These acts are the only ones announcing any principles adopted by the Territory for the determination of rights respecting water, and, together with two or three minor acts authorizing various counties to assist in irrigation enterprises, and the act of February 13, 1893, exempting all irrigation ditches, canals, and reservoirs from taxes for a period of six years after the commencement thereof, they form the body of Territorial enactments on the subject of water rights.

It will thus be seen that, while our statutory laws on this subject are fragmentary, there is no contradiction or unprogressive feature incorporated in any of the same. On the other hand, they have been found to be simple, in the main logical, and in view of the conditions, both of land and people, have been proved to be beneficial in their workings to the great body of the people. An analysis of these laws shows that they provide for and protect the Spanish-Mexican theory, under which, as stated above, good results have been attained, and that they also protect and encourage individual enterprises, and that the principles of such laws, as reenforced by the interpretation of the courts, protect each system from any trespass whatever upon the other.

As the ideal of beneficial legislation is the least possible regulation necessary with reference to a given subject, it would appear that our legislators in the past have most promoted the irrigation interests and the development of the Territory by their remarkable conservatism in legislating upon this subject. Few laws have been deemed necessary other than the community system of laws above mentioned, and these have, as above stated, been enacted. The principles of these laws are easily construed by the courts, and very little difficulty is found in following and putting them into effect. There is no subject with reference to which the laws of the Territory (both the community and private water appropriations) are better understood by the people, or with reference to which principles are more definitely established. We are very largely indebted for this, not only to the above legislation and the decisions of our own courts, but to the decisions of all the courts in the arid States and Territories, in all of which the right to appropriation of surplus waters of all streams is recognized and upheld, qualified only by the doctrine that priority in time gives priority of right; that rights claimed must be perfected with due energy; that the appropriation must be made for beneficial purposes and is limited to the amount needed for such purposes.

While the legislation of the various States and Territories varies considerably, yet it is believed that all of them recognize this doctrine as above defined. In several of the States and Territories it was early contended that the acts of the citizens thus taking possession of and diverting the water from the streams thereof were contrary to the principles of the common law, which recognizes the rights of riparian owners along such streams; and because of this belief and the confusion into which some of the courts fell in interpreting the rights thus claimed, as well as because of the fact that the rights claimed by different appropriators were found, in many instances, to trespass upon each other, a great amount of litigation, in which the doctrine of the right of appropriation has been involved, has arisen all over the West. Through this litigation it is believed that all questions capable of giving rise to embarrassing disputes concerning the uses of water have practically been settled and adjusted and the public made familiar therewith. There is a great unanimity of decisions in establishing such principles, and where there is any serious variance it has been caused by local statutes. Indeed, so common was the acquiescence of the public in the rights and principles which governed the appropriation of water, that early in the history of the arid West the Congress of the United States recognized such rights by the law now embraced in sections 2339 and 2340 of the Revised Statutes thereof, which read as follows:

"SEC. 2339. Whenever, by priority of possession, rights to the use of water for mining, agricultural, manufacturing, or other purposes have vested and accrued, and the same are recognized and acknowledged by the local customs, laws, and the decisions of courts, the possessors and owners of such vested rights shall be maintained and protected in the same; and the rights of way for the construction of ditches and canals for the purposes herein specified, is acknowledged and confirmed.

"SEC. 2340. All patents granted or preemption or homesteads allowed shall be subject to any vested and accrued water rights or rights to ditches and reservoirs used in connection with such water rights as may have been acquired under or recognized by the preceding section."

These enactments of Congress have been repeatedly construed by the Supreme Court of the United States, and the opinions contained in such decisions and the announcement thereof have been a material assistance to all of the States and Territories affected thereby, and have greatly promoted the unanimity of judicial decisions referred to above.

It is therefore apparent that though, as above stated, legislative enactments of this Territory with reference to this subject are fragmentary, yet, in view of the settled customs prevailing all over the arid West and of the enactments of Congress above referred to, additional legislation has not been and is not now essential in this Territory to fully guarantee to the people the full and beneficial enjoyments of rights which they have always claimed and now possess. Neither is it believed that any of the statutory enactments have incorporated in the body thereof any vicious principles which might operate to impair the interest of irrigation in the Territory. The result of the laws providing for such systems so enforced in New Mexico with reference to the creation of litigation arising therefrom is the best evidence of the wisdom of that system; and while there have been from time to time some complaints of irregular diversion of water at the expense of proprietors below, yet the least number of cases have ever gone beyond the trial court, and comparatively few have been commenced even; such as have arisen have been settled in the main speedily and without hardship to those having the better right to such waters.

One result of our system of laws on this subject is that when such a case arises our courts, not being hampered with conflicting and untried provisions as some other courts of our Western States and Territories, have the great body of principles as decided by other courts of last resort to draw from in the adjustment of their decisions along the line of equity and good sense and the widest possible latitude in putting their decisions into effect.

A notable case has recently been tried in one of the southern counties of the Territory, involving the most complicated issues and a vast number of litigants, having some 30 or 40 parties thereto, and involving as many claims of priority for different appropriations; after the evidence had been taken the district court (under our laws as they now stand) found no difficulty whatever in adjusting the priorities of all of these parties, and in providing by its decree a method for the distribution among all of those found to have rights thereto the insufficient supply of water over which they were litigating. This was a celebrated case, and was watched with great interest by the public; and it is believed that the result thereof brought peace to the whole community and established firmly the rights of each claimant, protecting the same as against the trespass of any other claimant, and providing a method for the distribution of the waters in such manner as could hardly have been reached under any system of legislative enactment in any of the Western States or Territories. It was a satisfactory demonstration of the wisdom of the present status of the development of our Territory, simply announcing by legislative enactment the general principles and leaving our courts to enforce the same by jurisdictional methods, as may be deemed equitable in each particular case.

The commission has not been unmindful of that part of the act creating the same wherein it was directed to examine the laws of other States and countries in determining what legislation should be recommended to the legislative assembly, and has made such study thereof as it was possible for it to make without going to the places where such laws were in effect. The legislation of such States and Territories has been carefully read, as have the decisions of the courts based thereupon. Much that is admirable has been found to be incorporated in the legislation of nearly every State, along with much which it would have been best to have omitted, and in some instances it has resulted in great confusion of principles. The system adopted in each State has been found to be the result of the needs of that particular jurisdiction, and the conditions are more or less different in each State from those that obtain in any other State.

Much of this great system of laws would no doubt be of great benefit if the conditions to which the same is intended to be applied existed in our Territory, but in the opinion of the commission they would be valueless if ingrafted into the law here, from the fact that the conditions, both as to soil, climate, water, and the disposition of the people are entirely different from those of the localities where such laws are enforced; indeed, it is the varying conditions of nearly every section of this Territory as to these essentials which renders the work of your commission in determining what laws should be made applicable a difficult one. General principles, of course, can be made to apply all over the Territory, but when it comes to the regulation of water rights and the rights upon which irrigation is dependent in detail, those which would be highly beneficial in one section of our Territory would doubtless be found detrimental to other sections thereof, dependent upon altitude, climate, different character of the soil, and the necessities of the people.

After the fullest consideration which the commission has been able to make of the laws of our Territory and those of the various Western States and Territories, it is our deliberate and unanimous conclusion that the principles governing the law of water and the rights connected therewith in force in this Territory are sufficiently just, progressive, and simple, and that the courts have sufficient jurisdiction and authority at present to fully determine and enforce the same with justice to all, and that no change of any of the principles so enforced would be advisable, and it therefore recommends that no legislation with reference to any of such principles is at present advisable.

EXPENSES OF THE COMMISSION.

The following table shows the total expenses incurred by the commission:

To P. E. Harroun, engineer for commission, four and one-third months, at $200 per month	$866.66	
To P. E. Harroun, expenses while in employ of commission	102.90	
		$969.56
To expenses of members attending the various meetings of commission:		
George Curry	47.00	
George Curry	41.00	
Antonio Joseph	54.00	
J. E. Saint	20.30	
Frank Springer	6.50	
(W. A. Hawkins made no claim.)		
		168.80
Printing and stationery:		
Daily Citizen	$6.00	
Daily Citizen	3.00	
Democrat Publishing Company	9.00	
Democrat Publishing Company	6.00	
O. A. Matson & Co. (letter book)	1.00	
		$25.00
Typewriting for commission:		
Clara H. Olseun	19.35	
Clara H. Olseun	1.40	
R. L. Hunt	50.00	
		70.75
Total expenses of commission		1,234.11

No salary or compensation of any kind to members or officers of the commission is included, and, as will be seen by consulting the items, but a very small amount was incurred for personal expenses of members in attending the meetings. The principal expense is for the employment of the engineer. Of the foregoing expenses only the sum of $360.55 has been paid. By correspondence with the Territorial auditor it was developed that he was not satisfied as to his authority to draw warrants for the payment of the whole of the expenses of the commission. We recommend that an appropriation be made by the legislature to meet these bills.

By the foregoing statement of expenses it will be seen that work of the character already done and herein indicated as desirable for the future can be carried on with considerable economy. The total expenses so far incurred, including the employment of an engineer, is only $1,234.11.

We suggest that the work which we have recommended might be advantageously continued under the auspices of a commission something like the present one, consisting of men representing the different sections of the Territory, not confined to any political party, and serving without pay. Such commission to be authorized to employ a competent hydraulic engineer to make annual investigations, and reports to be submitted to each succeeding legislature. The expenses to be incurred by the commission to be limited to a definite amount and fixed by appropriation. In this way, at a comparatively small expenditure, a series of reports would be produced which would be of permanent value to the Territory.

Dated December 15, 1898.

Respectfully submitted.

ANTONIO JOSEPH, *President.*
JOSEPH E. SAINT, *Secretary.*
FRANK SPRINGER,
W. A. HAWKINS,
GEORGE CURRY,
Commission.

The legislative assembly, on March 16, passed the law known as the "Land bill," the following section applying to the commission of irrigation:

SEC. 34. For the purpose of facilitating the selection of lands donated to the Territory of New Mexico by the act of Congress hereinbefore referred to for the establishment of permanent water reservoirs for irrigating purposes, and for the improvement of the Rio Grande, and increasing the surface flow of water in the bed of said river, there is hereby created a commission of irrigation, to consist of five members to be appointed by the governor, with the advice of the council, to serve for two years and until their successors are appointed. Such commission shall elect from among their members a president and secretary. The members of said commission shall serve without pay or compensation. It shall be the duty of said commission to investigate and select the most suitable sites for permanent water reservoirs for irrigating purposes and for improvement of the Rio Grande, and also to designate such tracts of public land capable of irrigation from such reservoirs as would in their judgment be advisable to locate for the Territory under said act of Congress, in order to secure the benefit of the enhanced value of the lands resulting from the establishment and construction of such reservoirs, for which purposes they may employ all necessary expert assistants, and to certify the result of such investigation, selection, and designation to the commission and acting under said act of Congress for the selection of the lands donated thereby. Said commission shall also, at least thirty days before the meeting of the legislature, make a report to the governor embracing all available information concerning the best method for improving the Rio Grande and increasing the surface flow of the water in the bed of the said river. Also concerning the subject of irrigation and water supply, the quantity of land in the Territory cultivated by means of irrigation, the extent of present and proposed system of storage reservoirs, the conditions existing in different parts of the Territory with reference to irrigation and water rights, and such other facts as they may deem proper, together with recommendations as to needed legislation on any of such subjects.

The necessary expenses incurred by the commission, to be certified by the secretary thereof and approved by the governor, shall be paid out of the proceeds of the land sold under this act which are credited to the fund for the establishment of permanent water reservoirs for irrigating purposes and the improvement of the Rio Grande: *Provided*, That the expenses provided for in this section shall not exceed fifteen hundred dollars for each year.

Under the foregoing section the commission was duly appointed, consisting of Hon. G. A. Richardson, Hon. Frank Springer, Hon. W. A. Hawkins, Hon. Pedro Sanchez, Hon. Levi A. Hughes.

The organization was perfected by the election of Hon. G. A. Richardson, of Roswell, N. Mex., as president, and Hon. Levi A. Hughes, of Santa Fe, N. Mex., as secretary.

I regard this as one of the most important boards in the Territory, and its work can not help but result in rendering great assistance toward promoting the interests of irrigation in New Mexico, besides the great good and benefits derived by the school lands donated by Congress.

MONEY IN IRRIGATION.

The improved systems of irrigation upon which New Mexico has to depend for the multiplication of her useful land area are developing rapidly, but there are still many opportunities for the investment of capital in irrigation projects which can not fail under good management to make millionaires of the projectors.

There is in operation the Springer system of irrigation, with 50 miles of ditches and five reservoirs, covering 22,000 acres. The Vermejo system of irrigation, which controls 57 miles of ditches and 10 reservoirs, supplies 30,000 acres. In the northwestern portion of the Territory there are 200 miles of ditches, watering 24,000 acres. Here there are several tracts of fertile soil, accessible to streams which will afford an ample water supply, awaiting the attention of moneyed men. Also extensive ditch systems are in operation in the Mimbres region of Grant County.

The irrigation projects noted above are in the four corners of the Territory. In the meantime the great central portions are receiving attention, more than fifty companies having been organized for irrigation projects, and several having plants in operation, affording to the home seeker at the present time ample opportunity for settlement and reclamation.

The valley of the Rio Grande presents the most extensive field for operations of this kind, as the present narrow strip of cultivated land can be widened very materially by a proper disposition of the water which flows so abundantly from the north and is now allowed to be wasted. A few years will find all the water now suffered uselessly to run away utilized to the highest degree and enlarging the area of the agricultural and horticultural land to an extent almost fabulous.

Meanwhile, individual enterprise is increasing the local supplies by the erection of multitudes of windmills, pumping from artesian wells in various parts of the Territory. These prove the existence of great bodies of water underlying a large portion of the Territory. To the settler this means much, and will add in a great measure to the future possibilities of production.

THE NORTHWEST RIVER SECTION.

The San Juan River country, in the northwestern portion of the Territory, offers a splendid opportunity, not only for the production of cereals, but also for vegetables and fruits of all kinds. The vine thrives to perfection. The valleys of the Las Animas, La Plata, and Los Linos, all tributaries to the San Juan, are also capable of rendering large amounts of produce. The valley of the Chama River, especially in its upper part from Chama, on the Denver and Rio Grande Railway, to below Tierra Amarilla, the county seat of Rio

SPILLWAY, CARLSBAD IRRIGATION RESERVOIR.

Arriba, is one of the finest valleys in the country, and highly productive. And again, the valleys of the tributaries to the Chama, the Brazos, Nutritas, Gallinas, Puerco, El Rito, Ojo Caliente, Bear Creek, and others are all highly susceptible to cultivation. The valley of the Puerco of the East, and the Rio Jemez, with its many tributaries, afford fertile lands, already for centuries under cultivation.

ADVANTAGES OF IRRIGATION.

When the Eastern farmer sees all the work entailed in laying out a wheat field for irrigation and the subsequent labor of applying the water, he is often heard to exclaim, "If all that work is necessary, I have no use for irrigation." It is useless to attempt to disguise the fact that irrigation entails much expense in the cultivation of crops. Of course, that expense varies with the kind of crop raised; but the question may be asked whether the value of the extra quantity produced is not in excess of the extra expenditure.

Let us take the case of alfalfa. The yearly expense per acre for irrigation, as has already been shown, is $2.15; but four crops of hay are raised in the year in lieu of one without irrigation, or say 3½ tons instead of 1½ tons. The farmer therefore gets an extra 2 tons of hay for an expenditure of $2.15 in water. Add $2 for the cost of harvesting these 2 tons, and you have an extra 2 tons of hay, costing $4.15, or $2.08 per ton.

In the case of wheat crop it is not easy to give exact figures, but I have no hesitation in saying that the crop will be double what it is in countries where irrigation is not practiced and where fertilizers are not used. This is due in large part to the fertilizing properties of the river water, to which reference has already been made, which insures the permanent fertility of the soil. One must also bear in mind the fact that wheat and almost all farm products are worth more in the irrigated districts of the West than they are farther east.

No farmer would consider it a waste of money to put 10 tons per acre of barnyard manure upon his land every year, even though it cost him $6. For half this expense he can, where the river water is of the same quality as that which irrigates the Mesilla Valley, not only apply fertilizers equal to the contents of 10 tons of barnyard manure, but he gives the crop the exact amount of water required for a full yield, insures it against loss by drought, and gets a better price than could be obtained elsewhere. Irrigation farming means intensive farming, and it is intensive farms which pay in the long run.

If the question is asked, as it often is, What is the most profitable product to raise in New Mexico? the answer generally made is that apples, peaches, grapes, or some fancy crop will pay the most money, and dazzling figures are given showing the number of pounds per acre and cents per pound, resulting in a rapid fortune from 40 acres of land.

THE CANADIAN RIVER SECTION.

This agricultural district lies between the Raton Mountains on the north and the Pecos River on the southwest. The Canadian flows through it for about 150 miles in a southeasterly direction to near old Fort Bascom, and from there easterly (a little north of the thirty-fifth parallel of north latitude) for about 50 miles. Most of its tributaries flow in from the west. As the western part of this entire section has a slope toward the east with a general descent to the southward, the highest localities are in the northwest corner and the lowest in the southeast, with a falling altitude of from 5,000 to 3,000 feet. Some portions of this river have a fall of 9 feet per mile. Of its tributaries the Little Cimarron and Vermejo creeks afford considerable breadth of arable land, the former having a valley from 25 to 30 miles long and from 1 to 6 miles wide, and the Vermejo one of the same length and about 2 miles wide. Both of these valleys are very fertile, with plenty of water for irrigation. The Rayado Creek has a good valley, but it is subject to overflows. Ocate Creek Valley, formed by erosion, is also very good agricultural land. The Mora River Valley is doubtless the finest in this section. It has a length of from 60 to 70 miles and a breadth of about 4½ miles. Its upper portion, from 8 to 10 miles in length, is about 3 miles wide.

GILA AND COLORADO RIVER SECTION.

This section embraces a belt of land of from 50 to 100 miles wide along the whole of the western line of New Mexico. It is watered by the Rio Puerco of the West and the Zuni River in the north, and by the Gila and its many tributaries and the Rio San Francisco in the south. There are rich and extensive valley lands along the bottoms of these rivers, the most fertile being that of the Rio San Francisco.

NEW MEXICO SOIL.

The soils of New Mexico, as a rule, are quite different from the soils of the Eastern States and possess many advantages not possessed by the latter.

The power of the soils to produce plants depends upon many conditions, among the more important of which may be mentioned a proper control of the moisture, the climate, and the amount of available plant food present.

In regard to moisture control, soils depending on irrigation for their moisture, as do those of New Mexico, have a decided advantage over soils depending solely upon rainfall. While the valleys of New Mexico have an average annual rainfall of probably some 10 or 12 inches, and the greater part of this usually comes in the summer during the growing season, it is still quite insufficient for the needs of ordinary farm crops, which must depend for the greater part of their moisture upon irrigation. The supply of moisture to irrigated soils is under almost absolutely perfect control, provided the water supply is constant. The advantages of such a control of the moisture must be apparent to anyone.

HOW TO OBTAIN TITLE TO PUBLIC LANDS.

The following information is furnished by the register of the United States land office at Santa Fe, N. Mex.:

There are nearly 57,000,000 acres of unappropriated public land in the Territory of New Mexico. Agricultural public land is subject to entry only under the homestead and desert-land laws. The homestead laws of the United States secure to qualified persons the right to settle upon, enter, and acquire title to not exceeding 160 acres of public land by establishing and maintaining residence thereon and improving and cultivating the same for the continuous period of five years. A homestead entryman must be the head of a family or a person who has arrived at the age of 21 years and a citizen of the United States or one who has declared his intention of becoming such, and he must not be the owner of more than 160 acres of land in any State or Territory. A wife who has been divorced from her husband or deserted by him can make homestead entry. Payment of $16 fees and commissions must be paid at the time of entry, and final proof can be made at any time when five years' residence thereon and a cultivation of a portion of the land can be shown. The cost of making final proof, including publication of notice, taking testimony, and commissions, is from $14.25 to $15. A party can, at the time of making homestead entry of 160 acres, enter 160 acres under the desert-land act. He will be required to pay 25 cents per acre at the time of making the entry, after which he is required to expend $3 per acre ($1 per acre each year for three years) in labor or money in improving the land and constructing reservoirs, canals, and ditches for irrigating and reclaiming the tracts entered; and the party may make final entry at any time prior to the expiration of four years on making the required proof of reclamation, of expenditure to the aggregate amount of $3 per acre, and of the cultivation of one-eighth of the land and making a final payment of $1 per acre.

BEET SUGAR IN NEW MEXICO.

The pronounced success in beet-sugar production in the Pecos Valley has occasioned widespread popular interest in the cultivation of sugar beets throughout New Mexico.

During the past three years, from beet seed furnished by the Agricultural Department in Washington, under the direction of the College of Agriculture at Lascruces, the better class of farmers in the Territory have been raising sugar beets with uniform success. The fact is clearly demonstrated that on all the valley lands in New Mexico, with irrigation, may be grown the finest crops of sugar beets of the most satisfactory quality for the manufacture of sugar.

It appears that beets of large size, of small sugar content, may be grown almost anywhere with the ordinary attention given to a crop of corn or potatoes; but special conditions of soil and climate seem to be necessary to produce a crop of beets rich enough in sugar to be profitable for purposes of manufacture of sugar. In determining the presence or absence of these conditions, our Territory has occasion for congratulation in the zeal and good work of the College of Agriculture at Lascruces.

Throughout the Rio Grande Valley, from El Paso to the Colorado line, results appear to be uniformly satisfactory. In the central portion of the Territory, in the high valley region about Santa Fe, the conditions of soil and climate appear to be specially suited to this crop. Here the uniform temperature and almost perpetual sunshine during the growing season seem to develop a larger percentage of sugar in the beet than in almost any other section of the United States in which tests have been made. It appears from tests made at the experimental station last year that Santa Fe grown beets weighing over 10 pounds tested over 12 per cent sugar content, and smaller beets of less than 20 ounces contained more than 20 per cent of sugar.

The yield per acre with irrigation appears to be merely a matter of care and skill in cultivation and in handling the crop under our conditions of climate. The tendency in overirrigation is to produce a large beet of small sugar content. On the other hand, on the prevailing sandy clay soil about Santa Fe from 10 to 12 tons of small beets of large sugar content may be grown with even less water for irrigation than is usually given an average crop of corn. For sugar making the beet most desired should weigh less than 20 ounces and contain more than 15 per cent of sugar; and for the raising of this beet New Mexico has the necessary soil, sunshine, water, and cheap labor to successfully grow in almost any quantity desired. It is not alone in the production of sugar beets of superior quality that New Mexico invites the attention of the sugar-making interest in the country; her railroad facilities for delivering beets at a common point centrally located for the manufacture of sugar in the Territory are all that can be desired. Both at Santa Fe and at Albuquerque may be located sugar factories, convenient to the ample supply of good water, cheap fuel, the best of limestone in unlimited supply for factory use, and reliable local labor. The Rio Grande Valley, and especially in the neighborhood of Santa Fe, has been the home of a native population for many generations accustomed to small truck farming and gardening with irrigation, and are already skilled in the light labor required for the cultivation of the sugar beet.

It is rare indeed that all or so many of the conditions for successful beet-sugar production may be found in the same locality.

Nature has indeed been generous in endowing New Mexico in this particular interest.

CARLSBAD, N. MEX., *July 15, 1899.*

DEAR SIR: Your communication of the 1st instant duly received, and I take pleasure in giving you a concise statement in regard to the beet-sugar industry in our Territory.

The beet-sugar industry was started in the United States in the year 1887, with a production in that year of 30,000 tons of beets. From this small beginning it has rapidly advanced, especially in the last three years, bringing up the production of beets to over 1,000,000 tons, equal to over 100,000 tons of refined sugar, with factories working their full capacity daily for one hundred days during the year, this being a fair average of the length of the campaign of the numerous factories now in operation.

The State of Michigan has experienced the most rapid development, owing to the large State bounty given, and while I do not believe in State bounties, as you will see by the inclosed marked copy of my address upon the beet-sugar industry at the trans-Mississippi congress, recently held at Wichita, Kans., still, if other States do give these bounties, you can readily see the disadvantage it puts our Territory and other Territories and States under, where it seems impossible to get a bounty, and as long as these bounties do exist it will materially retard the development of the industry here, even if the sugar beet grows well and is of a good quality, since investors will always seek the locality offering the best inducements. The quality of the beet raised in any section of our country is not sufficiently superior to counteract the bounties paid by some of our States; hence the rapid development in the districts enjoying the fostering care of State governments. I mention all this as the principal reason why the industry has not grown in our Territory.

THE SUGAR BEET IN NEW MEXICO.

As early as 1891 it was known that sugar beets yielding a very high per cent of saccharine could be grown in New Mexico. In that year a number of samples grown in the Pecos Valley were shipped to the Department of Agriculture in Washington for analysis, and were found to contain an average of 14½ per cent of sugar, the richest beets giving 21.85 per cent.

New Mexico belongs to the section of high plateaus which, under proper cultivation, can be made to produce a phenomenally rich beet.

Experiments in sugar-beet growing continued in the Pecos Valley until 1895 with results so satisfactory that in the following year, 1896, the first sugar factory in New Mexico was built in Eddy, now Carlsbad.

The factory is now entering upon its fourth campaign. The past three campaigns have not been the financial success expected, owing to an insufficient supply of beets, due to the scarcity of farmers. The success in raising sugar beets is made in localities where the average acreage per farmer is not over 5. In Lehi, Utah, where the most continuously successful crops have been raised in the United States, the average is only 4. As an example, you can readily understand that 100 farmers cultivating 5 acres each will raise many more tons than five farmers cultivating 100 acres each. The sugar beet is rather a garden crop and requires considerable care to bring about the best results, and a man having only 5 acres is able to give the crop all the attention required, while a man cultivating 100 acres is bound to neglect the proper cultivation and care of it, at least on a large portion of the field. The beet crop repays handsomely the close, careful, and intelligent work put upon it. It is not uncommon to obtain a yield of 20 tons to the acre, although an average of 14 tons is considered exceedingly good.

The advantages of the soil of New Mexico for the growing of the sugar beet on a profitable scale surpass many localities in the United States, and under proper conditions—namely, a sufficient number of good farmers who will not undertake too large an acreage and work wisely—I doubt very much if New Mexico has a superior anywhere, especially where irrigation can be applied. The number of days of clear weather, with good soil and an abundance of irrigating water, together with proper attention, should give a good yield every year, and our climatic conditions will give a richer beet than in the districts located outside of the arid regions, because it is well known that the sugar in the beet does not come from the soil, but from the clear atmosphere, and as we have more bright, sunny days here than, I believe, in any other sugar-beet district, our beets contain and will continue to contain a higher percentage of saccharine matter. Again, the dry fall and winter, together with the absence of hard frosts, allow the beets to remain in the ground until needed by the factory, thus doing away with the expense of siloing, necessary in Northern States.

As stated before, the sugar beet is a profitable crop for the farmer to raise. We pay $4.75 per ton for beets delivered to the factory. The freight charges are 50 cents per ton from any station on the line of our railroad. As most of our beets are delivered by rail, the farmer therefore realizes at least $4.25 per ton f. o. b. cars at his nearest station.

Contracts are made at the beginning of every planting season, thus guaranteeing a cash market to the farmer for his crop, which is in no way affected by the price of sugar or by any speculation. The cost of raising an acre of sugar beets up to harvest time should not exceed $12 per acre. The harvesting of the crop, including loading on the cars or at the company's sheds, should not cost over $1 per ton. A farmer can therefore realize a profit of from $15 to $35 per acre.

Lands in New Mexico are cheaper than in any other sugar-beet district, ranging from $15 to $30 per acre, which should also be an inducement to settlers to locate here.

Again, the season for planting is longer than elsewhere, extending from April 1 to July 1. This is an advantage in case of a mishap to the early planting, as it gives sufficient time for replanting in order to raise a good tonnage before the factory is ready for the beets. Our harvest commences in November. It continues, or would continue with a full crop, until March 1, keeping the farmer busy during the months in which with other crops he is idle and when all other crops are harvested and disposed of.

The capacity of our factory is 200 tons of beets per day, and capable of producing 4,000,000 pounds of white granulated sugar. It is so constructed that it can easily be enlarged when necessary.

A beet-sugar factory is of lasting value to a new and growing community. Our factory during a four months' run pays out in wages about $25,000, to farmers for beets over $85,000, to say nothing of the amounts paid for freight, coal, and other items of expense which put money in circulation.

Trusting that this information will enable you to sufficiently cover the subject of the sugar-beet industry of New Mexico, and offering you any further data desired, I am,

Very respectfully,

ARTHUR S. GOETZ, *Manager.*

Hon. MIGUEL A. OTERO,
Santa Fe, N. Mex.

THE CULTURE OF GRAPES.

Rio Grande Valley is well adapted to the cultivation of grapes. The principal kind now existing is the Mission grape, which was introduced by the Catholic missionaries as early as 1711, and has ever since proved to be the standard variety in this Territory on account of the richness of its flavor and the amount of sugar it contains. It makes an excellent red or white wine, and is equally valuable for the market. From experiments we know also that our Mission grape compares favorably with the French grapes for the manufacture of champagne.

With skill and good management it can not be surpassed. The cultivation of the vine has been practically taught to the natives, and their methods have proved ever since fully successful as to the covering, uncovering, cleaning, and pruning of vines.

There is no doubt that the soil of this Territory is splendidly adapted to the cultivation of the grape. Of late years a number of new varieties of vines have been introduced by various parties and are doing well; nevertheless they require the same methods of cultivation as does the Mission grape.

One acre, or 1,062 vines, will yield each year about 12,744 pounds of grapes, or 910 gallons of wine. This is considered a moderate estimate.

THE CULTIVATION OF THE GRAPE IN THE MESILLA VALLEY.

Among the natives the grape is the principal fruit raised in the valley, although many of the American farmers own good vineyards. The former grow the Mission grape almost exclusively, whereas the latter mostly raise the Muscat of Alexandria, Black Hamburg, Gros Colmar, Malvoisie, and other so-called California varieties, all of which thrive perfectly.

The grapes begin to ripen toward the end of July, and the shipping season usually lasts till about the last week in October. A great deal of wine is made, but it is usually more profitable to sell the fruit for table use. During the season large quantities are shipped, mostly in 10-pound baskets, to all the towns in New Mexico, and to many of the markets of Arizona, Colorado, Texas, Louisiana, etc.

The vineyards are usually started by putting a couple of cuttings during March every 8 feet each way, although many of the older vineyards are set at 6 feet apart. When the cuttings begin to grow, the weaker one is pulled out and the stronger left. The object of setting two cuttings is to make sure of one growing. At 8 feet apart each way 680 vines go to the acre, and this seems a better way or distance than 6 feet apart, as it gives more room for cultivation. Some of the most progressive horticulturists consider that the rows 10 feet apart and the vines 8 feet apart in the row (544 vines to the acre) is still better.

What is known as the "stump" method of training and pruning is followed. This consists in staking the vine during the first two years, so as to form a straight, upright trunk. The first year the vine is allowed to grow as it will, when it is cut back to its strongest eye. The second year all the buds are rubbed off to the height of 15 or 18 inches, and at the next pruning the cane is cut back to 18 or 20 inches, leaving two or three buds as a basis for the future head. From now the "short spur" system of pruning is adopted; that is, the canes

Beet-sugar Plant, Carlsbad, N. Mex.

are all allowed to grow as they please during the summer, and at the regular pruning in March these canes are cut back to one or two eyes, from which spring the bearing canes. Of course as the vines get old too many spurs are made, and many of them too long, when some of them must be cut out altogether. Under this system most of the grapes seem to thrive very well, although there is a great deal of careless staking and training in the early life of the vines, resulting in difficult pruning later on, and many of the bunches get spoiled by the mud, owing to the want of good, straight, strong trunks to hold up the fruit.

There is considerable difference of opinion as to whether the grapevines need to be hilled up during the winter in this valley. The old custom among the natives has been to cover the vines with hills of earth in the month of November and not to uncover until the following March, when it is time to prune. The mounds of earth are raised sufficiently high to just cover the buds which are to be left for the coming year. No irrigation is given during the winter, or until after pruning.

The object of this hilling up is not to protect the vines so much from the winter cold as from the cold, drying winds, which cause the trunk to crack and the canes to winterkill. It is, however, claimed by those who have tried it in recent years that if the vineyards be irrigated during the winter these dry, cold winds do no harm and the vines thrive better. Pruning is usually done in March, but earlier grapes are produced when the vines are pruned in the fall.

Undoubtedly much better results would be obtained if the vines were wider apart, better trained, and the surface soil kept well pulverized throughout the year. People taking up this industry would be well repaid for the care given their vineyards in the sale of their grapes at good prices—soon becoming independent.

VEGETABLES.

Most every kind of vegetable can be raised in this Territory, except, perhaps, the Irish potato in some localities. The potato is a native of the mountain country in its wild state, and in the central and western parts of Socorro County, along the northern line of Colfax County, and extending southward for 100 miles along the base of the mountains, the finest potatoes in the world are grown. The raising of this crop requires very little work, and the yield is very large. But new upland ground is required, all efforts to produce potatoes on the low, irrigated valley lands having signally failed.

Turnips, carrots, ruta-bagas, and cabbage all do well. Of the latter, it is no uncommon thing to see heads weighing from 20 to 30 pounds, and occasionally one that weighs several pounds more. Cabbages are worth from 1 to 5 cents per pound, depending upon the season of the year when they are sold. Onions excel in size and flavor, and are a good paying crop.

FRUITS.

The fruit industry is coming to the front rapidly, and people coming to this Territory to settle learn that fine fruit can be produced here with much less trouble than in the States. There are many magnificent orchards in this Territory. The size and variety of fruits raised would astonish and delight our Eastern orchardists. A large evaporator has been built at Santa Fe and another at Farmington, San Juan County, has just been completed.

Apples flourish luxuriantly. Pears, quinces, and plums appear to be in their native clime. The strawberry, currant, gooseberry, raspberry, and blackberry all thrive vigorously. The valley along the Rio Grande appears to be particularly adapted to all kinds of fruits, although all sections of New Mexico susceptible of cultivation will produce the finest variety of fruits and most abundantly.

CEREALS.

Wheat, in quality, size, and quantity, is not excelled anywhere in the United States. Corn does well, and oats grow luxuriantly, but are generally cut green and fed in the straw.

TIMBER.

Both hard and soft pine, spruce, oak, cedar, walnut, mountain ash, quaking asp, box elder, cottonwood, etc., are all found in great abundance.

LUMBER INDUSTRY.

Extensive pine forests in New Mexico make the lumber industry here an important one. All over the Territory individuals are erecting sawmills, whose product is demanded and utilized by the people who use lumber for building purposes in the place of the ancient adobe. The profits of lumbering are large.

HORTICULTURE.

The first annual report of the New Mexico Horticultural Society, covering the year 1899, has just been issued. It contains an account of the fruit exhibit held last year in the city of Santa Fe and the efforts of the society to awaken an interest in horticulture and stimulate, by offering suitable prizes, the production of valuable varieties of fruit.

The exhibit referred to was highly successful. It brought together a display which in many respects was remarkable. It showed that New Mexico, in the variety of its fruit products, having regard to quality as well as species, stands in the foremost rank among fruit-producing parts of the United States. Some States may produce certain species of fruit of superior quality to any yet produced in New Mexico, but the same States may fall short in respect of certain other species in which New Mexico may excel; so that it is in the uniformly high grade of its fruits that New Mexico surpasses the other parts of the Union.

Horticulture is a business to which the people of New Mexico may well give great attention. It would be practicable for them to supply large quantities of excellent fruit to the markets of the Mississippi Valley and the lake region. The climate of their Territory will admit of placing the products of their orchards and vineyards in the market at an earlier date than many competitive places, and care and experience in cultivation would in time enable them to produce varieties of a very superior grade.

Practically all the irrigated valleys of the Territory are adapted to fruit growing. The soil of the Rio Grande and Pecos valleys, for instance, is highly fertile, and irrigation has demonstrated its adaptability to both viticulture and horticulture. A good quality of wine could be produced by care in selecting the proper species of grapes. This has already been shown by what has been achieved in that direction. Altogether, the New Mexico Horticultural Society has an excellent opportunity for the accomplishment of a work of enormous value to the Territory.

Our horticultural fair was pronounced by all the most comprehensive and evenly balanced exhibition of fruits of all kinds ever seen, and it has stamped New Mexico as the most perfect fruit-growing section of the world, and while there are many exhibitions on a much larger scale, and some which might excel in some particular fruit, there is none which includes such a splendid showing of fruits of all kinds. There is one very noticeable thing about the fruit of New Mexico, and that is it is entirely free from insects of all kinds, is firm, and of very fine flavor.

During the course of this fair it was visited by those familiar with the American Institute fairs in New York, with State fairs of the East, as well as those of Colorado and California, and all concurred that the fruit excelled anything seen before at similar fairs.

Among the exhibits were 246 entries of apples, 34 of crab apples, 125 of pears; 58 of peaches, 108 of plums, 13 of apricots, 37 of nectarines, 15 of quinces, 36 of grapes, 12 of nuts, etc.

When the premium list was published the criticism was made that the number of varieties of fruits required for the first premiums were so large that no entries of that character could be made. The schedule called for 40 varieties of apples, 40 of pears, 20 of plums, 5 of apricots, 5 of nectarines, etc. The result showed that our horticulturists are raising a much larger variety of fruits than was generally supposed, as in all the above cases the required number was actually exceeded.

Among the notable specimens were the following: Largest apple, weight, 23 ounces; circumference, 15¾ inches. Red Beitigheimer, weight, 18¼ ounces. Gravenstein, 14 ounces and 13⅝ inches. Russet, 13½ ounces and 13½ inches, etc.

Among the pears a Bartlett weighing 18½ ounces, and an Idaho weighing 18 ounces were noticed.

The Agricultural College (of New Mexico) exhibit showed a peach weighing 10¼ ounces, and a Pride of the Rio Grande weighed 10½ ounces.

A bunch of Muscat grapes, grown as far north as Espanola, weighed 25 ounces, though not ripe; and Stanwick nectarines from the same locality reached 5¾ ounces in weight.

No premiums were offered for vegetables and no provision made for their exhibition, but so many excellent specimens were brought in voluntarily that it is evident that arrangements should be made to include them as well as floral displays at subsequent exhibitions.

The horticultural fair which has just closed here was a great success from every point.

MEMBERSHIP AND INCOME OF THE NEW MEXICO HORTICULTURAL SOCIETY, INCORPORATED AS A TERRITORIAL INSTITUTION IN 1886.

The number of life members is 17; of annual members, 166.

As life membership practically cuts off future income, the society has decided to lay aside half of the sum received from life members as a permanent fund for the purchase of land or erection of buildings in the future.

The total receipts of the society during the past year were $712.40.

Life members	$150.00
Annual members	166.00
Admissions	169.45
Subscriptions	67.50
Donations	27.85
Premium, less expense	131.60
Total	712.40

AGRICULTURE—HORTICULTURE.

[George Vestal, agriculturist and horticulturist, New Mexico Agricultural College Experiment Station.]

AGRICULTURE.

Our agriculture is carried on by the aid of irrigation, and when water is plentiful abundant crops are produced. In San Juan, Rio Grande, Pecos Valley, and other parts of the Territory modern farms exist, and when well managed are profitable. When a system of storing flood waters is put in operation immense areas will be put into cultivation. Alfalfa is the principal crop raised, producing three to four cuttings each season, yielding 3 to 5 tons of hay. It is an excellent feed, and most work horses receive no other at any time of the year, and remain in good condition even when continually worked. Wheat is largely raised, principally by the Mexicans. Rye and barley also do well. The experiments carried on with sugar beets at this station and by farmers in different parts of the Territory during the past year conclusively prove that beets of the highest quality can be produced in nearly every section of the Territory. Beets were produced which showed 10 to 22 per cent sucrose, great numbers of the samples running 14 to 17 per cent. The cultivation of the sugar beet is susceptible of a great development. Kaffir corn has proved to be a good crop in this climate and is largely cultivated in some sections. There are many crops not now cultivated which would prove profitable if attention were directed to them. Many sections of New Mexico, by reason of altitude or other conditions, have climates peculiarly their own, which would prove well adapted to some particular crop which would suggest itself to any live farmer. One great advantage the farmer has here over the eastern farmer is the ease by which he can preserve his crops. The dry, pure air retards decay to a great extent, and the absence of heavy dews and rains enables him to harvest and store his crops with but little waste.

HORTICULTURE.

It is in horticulture that New Mexico may expect her greatest development. The soil, when properly cultivated and irrigated, and the climate seem to be peculiarly adapted to the production of fine fruit. The soil is supplied with such essential elements for tree growth as lime, potash, etc., in such abundance as to be practically inexhaustible. These fertilizers form a large part of the expense bill of the fruit grower of the humid region. Our sunny climate produces a large, fine-flavored, high-colored, attractive-looking fruit, which greatly adds to its selling qualities.

The fruit industry of the Territory is still undeveloped. True, fruit growing has been largely carried on in San Juan County, the Rio Grande, and Pecos Valley, and large quantities of fruit have been shipped to near-by and distant markets, successfully competing with fruit from other States; but the large area comprising the small valleys, mesas, and level tracts, when supplied with irrigating waters, will produce such fruits as their climates will mature in larger quantities and to a greater perfection than any other part of the United States.

VEGETABLES.

Vegetables of all kinds reach their highest development in the parts of the Territory having climates favorable to their growth, and when properly cultivated yield enormously. The quality of our fruits and vegetables will compare favorably with those produced anywhere. The celery of Bernalillo and Chaves counties has gained a wide reputation for its crispness and fine flavor, and is quite largely shipped to adjoining States. The cabbage of northern New Mexico has been known for years to be as fine as can be produced. The tomatoes of the Mesilla Valley, when canned, are superior to any yet brought to this market, and the demand for them is rapidly increasing.

TEN ACRES ENOUGH.

[W. S. Burke.]

WHAT A MAN CAN DO WITH A SMALL TRACT OF LAND UNDER IRRIGATION.

Sweet potatoes of most excellent quality yield abundantly in all the valleys of the central and southern portions of the Territory, and constitute one of the best crops that the farmer can raise, because they enable him to realize a good return for his season's work from a very small tract of land, which is an important consideration to a farmer anywhere, but especially so to one in an irrigation country. The soil and climate of this country seem to be peculiarly adapted to the growth of the sweet potato; the quality of the product is fully equal to that of the famous potatoes of New Jersey, and a fair average crop will give from 900 to 1,000 bushels to the acre with proper cultivation. They never sell for less in the fall than $1 a bushel, and those that are kept into the winter usually bring as much as $2. From this it will be seen that 1 acre cultivated to sweet potatoes in New Mexico will yield the farmer as much money as he can hope to realize in a good year from 80 acres of corn or wheat in Kansas or Nebraska, and since the results are to be measured by dollars and not by acres, it will be apparent to anyone that the irrigation farmer, although he may not be able to cultivate fields as broad as those of his neighbor in the rain belt, has a better prospect of success and a decidedly better chance of a bank account at the end of the year.

The onion is another product that seems to be peculiarly adapted to this section of the country. The large white Spanish onion, which grows to greater perfection in the Southwest than anywhere else in the United States, affords one of the most profitable crops that can be grown in this Territory, and requires irrigation to bring it to perfection. On account of its beautiful silvery color and its peculiar mild flavor, this onion finds ready sale in any part of the country and always brings the highest market price. The yield is about 500 bushels to the acre under proper cultivation, and the price at home ranges from $1 to $2.50 per bushel.

Celery and asparagus are also articles which are especially adapted to the soil and climate of this country, and attain here a degree of excellence rarely found in such articles grown elsewhere.

The New Mexico celery is far superior to that grown in California and is pronounced by all who try it fully equal in all respects to the famous Kalamazoo product, which is noted throughout the country for its superiority.

And when it comes to asparagus New Mexico can fairly claim to "beat the world," for nowhere else on the American continent is there raised asparagus which can at all compare with that grown in the valley of central and southern New Mexico. In many places there are large quantities of saltpeter in the soil (the American settlers call it "alkali," because it comes to the surface after a rain and makes the ground white, causing it to resemble the alkali of the north). This article, which is deleterious to many kinds of vegetables, is the favorite food of asparagus and obviates the necessity of applying salt to the ground, as has been done wherever this vegetable is grown in the Eastern or Middle States. It also causes the plant to attain a degree of excellence and flavor in this country which is unknown elsewhere. During April and May, the months when the cutting is done, the shoots will attain, under favorable conditions, a growth of about 6 inches in a day, every particle of which is edible; there is no woody portion to be thrown away—the whole stock is as soft and tender as green peas, and the flavor is proportionately superior. Sample lots of New Mexico asparagus have been sent to many parts of the country, and the verdict is everywhere the same, "The best I ever saw." It is not only better than that grown in the East, but is so much better that its superiority is noticeable at once even to the casual observer. Actual experience has shown that it will bear shipping to Portland, Me., and that is as far away from New Mexico as you can get in the United States; so the whole country is open to us as a market, and that the article can be sold wherever it is introduced goes without saying. It will sell itself.

An asparagus bed of 1 acre will yield, after the third year, about 200 pounds a day for sixty days, which is as long as it is wise to cut it; this will bring an average of 10 cents a pound during the season. An acre in sweet potatoes will yield 900 bushels, worth $1 a bushel at least as soon as they are dug. An acre of onions will yield 500 bushels, worth never less than $500, and an acre of celery can be relied upon to bring at least $600. A man needs 2 acres in alfalfa and 2 in corn or oats for his horse and cow and 2 acres for house lot, orchard, and kitchen garden. That makes 10 acres in all, which is as much as any man needs to farm for profit, and is fully as much as the most industrious man can cultivate properly. There is an abundance of good land for such purposes to be had in all parts of the Territory. Take, for example, the Rio Grande Valley, the oldest portion of the Territory in point of settlement, a section that has been settled for more than three hundred years, and yet not one-fourth of the available land in this section of the country is under cultivation at the present time. Beginning a little above Bernalillo and going down to a point a little below San Marcial, we have one of the most desirable and fruitful sections of the famous valley and lying right in what may properly be called the agricultural center of New Mexico, a district of about 150 miles in length and with an average width of about 5 miles, embracing 750 sections or 480,000 acres; and yet a careful writer, who has traveled frequently over the district of country in question, says: "If we concede that one-tenth of the land is now under cultivation we are making a very liberal estimate." But if we should almost double this very liberal estimate we should still have in the district referred to about 400,000 acres of unused land—enough to furnish homes and profitable employment to 400,000 families, or more than the entire present population of the Territory. And there is no waste land in this district named; it is all arable and all tillable and needs only the application of water to make it as productive as the best land in any part of the world. The Rio Grande carries water enough for the cultivation of the whole of this tract without encroaching in the least upon the rights of those who live farther down the river. True, there would not be water enough under the system of irrigation at present in use—a system that was adopted three hundred years ago, when economy in the use of water was something wholly unknown and totally unnecessary, and under which the water wasted is at least five times as much in quantity as the water used—but it is not to be supposed that this system will continue many years longer. Modern systems of irrigation are being introduced in all other sections of the country where farming is done by irrigation. New Mexico will not remain long behind the times. The system practiced in California and Colorado, and in the Pecos Valley in our own Territory, which puts the water upon the cultivated fields and not upon the waste places and the wagon roads, will soon be adopted in this section, and then, as we have said, the Rio Grande will furnish water enough to irrigate all the lands in its valley and will support more people than are now in the whole Territory.

A country like New Mexico, where all kinds of fruit and vegetables can be grown to such perfection and in such profusion, is the place for canning factories, and it is safe to say that there is hardly a settlement in the Territory in which there is not at the present time a good opening for an establishment of this kind. The genial climate, the long seasons, the almost perpetual sunshine, and the rich soil, which is further enriched at every irrigation by the valuable sediment which is brought down from the mountains, all combine to produce conditions which are not surpassed in any part of the world for the successful growing of garden vegetables, and the yield of these is so enormous that it would hardly be believed by any one who does not possess a practical knowledge of the subject. There is a reliable home demand for all such products, and everything of that sort that can be grown here will be needed to supply the wants of our own people; but there are comparatively only a few vegetables that can be kept for winter use without preserving or canning. It is a well-known fact that the people who live in the cattle and sheep camps and the mining camps and villages of the West are the largest consumers of canned goods in the world; many of them practically live out of tin cans. The area of country in the Southwest that can be used for mining and grazing purposes is so much greater than the area that can be cultivated, and such a great number of people must always find employment in those occupations, that all the vegetable products of the country will always find a ready market at home. But, as is well known, it is necessary for the greater part of these products to be canned in order to be utilized. At present we are not producing one-fourth of the vegetables we consume for want of proper facilities for preparing them for market, and while we are able to produce more and better vegetables than any other section of the United States, our people are fed mainly upon the inferior products of other sections. If this condition of things had to be permanent it would be rather discouraging; but it will not continue very much longer; the good openings that are presented in all parts of the Territory for the establishment of canning factories will soon be taken advantage of by men who are looking for good business opportunities. The only reason why such industries have not already been established in all sections of the Territory is the fact that our present careless and haphazard system of irrigation renders the supply uncertain; but given a reliable modern system, such as will soon be introduced in every section where there are intelligent, progressive people, and it will be but a little while before we have canning factories enough established in the Territory to take care of all the vegetables we can raise, and the large sums that we now send abroad every year to pay for stuff that we buy from other sections will be kept at home for the benefit of our own people.

With respect to canned good, woolen goods, and all other articles which can be manufactured successfully here, we will not only have the advantage of a market at home for all we can produce, but the Territory is so far away from any other manufacturing center that the cost of transportation on goods shipped in from abroad is great enough to give the home manufacturer a good "protective tariff" which no Congress can repeal.

CANAIGRE.

An industry that is exclusively adapted to the arid Southwest, and especially adapted to New Mexico, is the production of the canaigre plant.

The following extract from Bulletin No. 21 of the Arizona Experiment Station will give the information asked by many as to whether canaigre may be grown in their respective localities:

> The best conditions for the growth of canaigre are a cool but not freezing climate, a moderate amount of moisture, sandy, fertile soil, and probably also a sunny and arid atmosphere. These conditions are nowhere combined more perfectly or for a longer period of the year than during the six or seven cooler months in the arid Southwest. * * * A mean temperature of about 70° or less is required for the growth of canaigre. Above this, even though there be abundant rain, as was the case in August, the roots will not do more than sprout feebly, and various attempts to make them grow in warm weather have failed. This seems to limit canaigre to the Southwest, for nowhere else, excepting possibly in some of the Southern States, is there so long a period of mild weather. It has been grown experimentally in Florida with some success, but in the Northern States the interval between the servere cold of winter and the extreme heat of summer is too short to allow of much root development. The sprouting of the roots in August, under the influence of rain, suggests that, in the culture of canaigre, one or two summers would prepare the plant to grow more promptly on the advent of cool weather.
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> The growing plant will stand a good deal of cold. When frosted the leaves lie prostrate on the ground, but immediately regain position when thawed out by the sun. The root also will endure freezing. It has been left in the ground all winter 60 miles north of New York City, subjected to a temperature as low as 15° below zero, without injury. At Lincoln, Nebr., the roots stood a very severe winter without any damage whatever. At Peoria, Ill., plantings made in 1892 were still alive in 1895, and similar results are noted at Washington, D. C., and Garden City, Kans. The new root development, however, is stated in a number of cases to be insignificant under such conditions.
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> As to locality, canaigre is found more commonly in sandy washes where water is more abundant. With irrigation it will make a good growth in any fertile, tillable ground, but the influence of soil conditions on actual production has been little studied. It seems to stand considerable alkali, and is even reported in the salt-grass meadows of Tia Juana Valley, near San Diego, Cal.
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> The tanning materials in canaigre remain pretty constant throughout the growing season, with, however, a small but distinct increase after the plants become established in vigorous growth. The amount of this increase in mature roots from year to year was further shown by taking four samples of wild roots, comprising every age up to about 5 years, dividing the samples as nearly as possible into successive years' growth and analyzing. It was found that the average increase of tanning materials from year to year, in ten instances, was 1.64 per cent in water-free material. In one set of cultivated samples the averages of the first and second years' roots differed 2.64 per cent. This indicates a small but constant increase in the per cent of tanning materials from year to year, but holds true only so long as the roots retain their

vitality. When they die the tanning substances quickly disappear. Although the percentage does not increase remarkably from year to year, the roots themselves become larger, so that the actual amount of tanning materials is much greater.

A factory for extracting tannin from canaigre is located at Deming, 230 miles from Albuquerque and directly tributary to El Paso; but arrangements are made to start a tannin factory at San Antonio, N. Mex. Parties interested have been very busy in San Antonio for the past several weeks taking options on land, selecting a site for the factory, and perfecting other arrangements attendant upon immediate construction.

The factory at Deming has been depending upon its supply of canaigre from the wild root, which grows in the greatest abundance in southern New Mexico, and is gathered by the natives and shipped. Now, however, it is proposed to cultivate the plant, and already options have been secured on 3,000 acres in the immediate vicinity of San Antonio, with 2,000 acres more to follow, thus making 5,000 acres altogether. This immense tract of land will be placed under a complete system of irrigation, for, although the canaigre plant grows wild in the most arid regions, it takes five years to assume mature growth, while under irrigation a good crop can be produced annually. Canaigre grows only six months in the year and, strange to say, this is during the winter season from October to April. This plant has been used by the Mexicans for centuries in tanning their leather, but always in a dry form. Now, however, there has been discovered a process by which the acid can be extracted from the green root, so that a new supply can be taken from the fields every day and converted into tannic acid, thus making the root worth from $80 to $90 per ton in any market.

San Antonio was selected as the most suitable place on account of its irrigating facilities and its rich coal fields. The coal mines of the Hilton Mercantile Company lie not very far distant and the fuel can be had at a very nominal rate. The factory will employ 50 or 60 men, while the cultivation of the plant will give work to an additional force of 250 men. The capitalists who are interested, it is said, will spend a quarter of a million of dollars before they get the factory in running order. This will undoubtedly make it one of the most important enterprises in the Territory, and will mean a great era of prosperity for the San Antonio Valley.

THE CANAIGRE PLANT.

Canaigre is one of the richest producers of tannic acid known to the chemists and tanners. In tanning leather it is absolutely essential to have great vats full of the acid, in which hides soak until rid of much of the animal matter and are rendered pliable. Canaigre is found wild in the greatest abundance in almost every part of New Mexico.

Through deforestization, the former great sources of supply of tannic acid, oak, hemlock, beach, and sumac, have been greatly diminished. Canaigre has been declared by experts to be a better tannic-acid producer than hemlock bark.

To Mr. Francis E. Lester, registrar of the New Mexico College of Agriculture at Las Cruces, I am indebted for the following description of this valuable plant and its uses:

Canaigre (*Rumex hymenosepalus*) is a native plant found wild in the region known to botanists as the Lower Sonora life zone. It is most at home in a sandy soil, and in the lower plains and river valleys. Its name is a corruption of Spanish "cana agria" (sour cane), otherwise known as wild dock, wild rhubarb, etc. Its roots are like those of the dahlia or of the sweet-potato, being tuberous. They vary in size from the fraction of an ounce to more than two pounds in weight, and grow in clusters which increase in number and size every year, growing darker and harder as they grow older. A plant grown from seed will produce a root from 1 to 4 ounces in weight the first season, and this root will produce from two to a dozen other roots during the next season. The life of the plant is about five or six years. Wild plants are found yielding as many as eighty to one hundred roots, weighing 8 or 9 pounds. In cultivation the plant has been satisfactorily propagated by cutting the tubers, or by detaching the shoots, in the same way that the sweet-potato is propagated.

The plant makes its growth during the winter season, between September and May, blooming in March and April, and dying down in May. It will stand a good deal of cold, one plant having stood 15° below zero in New York State.

Experiments show that the per cent of tannic acid in the roots runs from 25 to over 30 per cent. The effect of cultivation appears more in increased size and number of the roots than in increased percentage of tannic acid.

When shipped green the roots were found to ferment on the way, but shipped in a dried and sliced condition they meet with a favorable reception. By drying and slicing, a ton of canaigre chips is produced from 3 tons of green roots. In 1891 over 1,000 carloads were shipped to European points. The prices ranged from $55 to $65, delivered.

Experiments, for the purpose of obtaining a more concentrated form of canaigre product, resulted in 1892 in producing a satisfactory canaigre extract, and a factory was erected at Deming to produce the extract. The product is a semisolid extract, having a standard purity of 48 per cent of tannic acid. One ton of this extract is obtained from 4.83 tons of green roots. The entire output of the factory was sold at prices averaging 5 cents a pound delivered.

S. P. Curtis, the juror of tanning materials of the World's Fair, says: "I am of the opinion that canaigre contains a large quantity of tannic acid, with less injurious substances than any other known tannic material in use. Leather tanned with this material is much stronger, more durable and flexible, and is affected less by heat and moisture than that tanned by any other material. It reduces the time of tanning to at least one-half that required by other materials used in modern tanning, and it contains a filling property not found in any other tanning material."

These favorable comments are practically repeated by experts in other countries. With the rapid destruction of the oak and hemlock, tanners will have to look elsewhere for a tanning product.

Twenty to forty years are required to grow a fair-sized tree, while in two years as much tannic acid as would be contained in the tree may be produced from canaigre on a few yards of land. A ton of hemlock bark furnishes about the same quantity of tannin as a ton of canaigre roots, but the former costs more than twice as much as the latter. Moreover, the cost of working the hemlock bark into extract is greater than that of working the canaigre chips.

Canaigre is a certain crop. It responds readily to cultivation by an increased yield. It is easily planted. About 900 pounds of young, 1-ounce roots, set at intervals of 1 foot in rows 3 feet apart, is sufficient for one acre. It is a winter crop, and is irrigated when water is little used for other irrigation purposes. The roots may be left in the ground for an indefinite time before harvesting.

The cost of growing an acre of canaigre is not more than $16.50. The roots will yield from 12 to 20 tons per acre. The crop may be irrigated four to six times, the land being cultivated after each irrigation in order to loosen up the soil. Planting should be done before October 1, and harvesting between June and September.

Analysis shows that the waste product left after extraction is as valuable for fuel as mesquite wood. When well rotted, it is also valuable as a fertilizer.

It is said that the available supply of native roots near railroad shipping points has been exhausted, and the industry must in future depend upon the cultivated product.

In this territory, where, as every resident knows, the wild tuber grows luxuriantly all around, some test crops of this plant ought to be made.

It was said, long ago, that the manager of the plant at Deming declared that San Juan County was the best country for the growth of canaigre he had seen. Only the lack of railroad connection prevented that plant being located there. But at the prices mentioned it ought to pay to ship, dried and sliced.

CELERY PRODUCTION.

A product in which the Pecos Valley is gaining special distinction is its celery. It is an industry which is developing rapidly, constantly acquiring new markets. The most extensive production of this delicacy is near Roswell, on the Spring Brook celery farm. The farm is watered by a great spring bubbling from mother earth, which, combined with the continual sunshine peculiar to the Pecos Valley and the saline nature of the soil, makes a combination for growing a high grade of celery not possessed by any other country. The constant sunshine, which blushes the apple, crimsons the cherry, ripens the golden grain, colors the flowers, and flavors the fruits with the choicest essence of nature's brewing, is no less potent in storing up those essential qualities in celery that raise it to a standard excellence, surpassed by none, equaled by few, and may be well said to bear the same relation to the celery trade as gold to the monetary system. The celery raised in the Pecos Valley is pronounced by those qualified to judge superior to that raised anywhere else in the United States, and the fact that it leads all competitors in every market it has reached would seem to verify the assertion, particularly when it is known that it came in competition with the product of the most famous celery farms in the whole country. The soil of the valley seems to possess to a marked degree the constituents which impart to this table delicacy the peculiar nutty flavor so much sought after by epicures. The Spring Brook farm has proven a full success, both in the production of the vegetable and in marketing it to financial advantage. The Roswell Register notes this fact in a recent paragraph, which says:

> W. M. Farmer has just received returns from his last shipment of celery. The total figures show that, in addition to supplying the local demand, he shipped out 88,815 pounds. The express bill on this was $1,389.80. The gross income realized at the farm for the crop of 20 acres was over $6,000.

The planting on this farm has been increased to 25 acres this season, while all over the valley farmers are putting in beds of greater or less extent.

FANCY TOBACCO SEED TO BE DISTRIBUTED AMONG NEW MEXICAN FARMERS BY THE COMMERCIAL CLUB OF ALBUQUERQUE.

The following letters relative to the culture of tobacco have been received by the Commercial Club of Albuquerque, and the seed mentioned is now at the club rooms awaiting distribution. The seed will be issued in small quantities to all farmers who wish to raise tobacco and who will agree to give the intelligent care and attention necessary to insure successful cultivation. The letters are self-explanatory:

CHICAGO, ILL.

COMMERCIAL CLUB, *Albuquerque, N. Mex.*

GENTLEMEN: Not long ago Mr. Chambers, general freight agent, sent me a sample of the tobacco raised in the vicinity of Albuquerque, which I sent to an expert grower in Virginia, who reports on same as follows:

"The tobacco you sent to me has an excellent flavor, but owing to the fact that it was cut before being thoroughly ripe it cured up green. In as dry a climate as New Mexico, with the proper kind of seed to begin with, tobacco ought to cure a splendid bright red color without using any fire at all. But in order to get the right color and flavor, two things are necessary—the right kind of seed, and allowing the plant to become thoroughly ripe.

"In New Mexico the plant bed should be made in February, and should be from 20 to 50 yards square, according to the size of the crop contemplated, and should be irrigated. The plant bed should be gotten in thorough order and the seed should be sown in it by the 1st of March.

"The plant should be ready to set out in June, and, if the ground is in good order, one rain or one irrigation will make the crop. Tobacco requires less water than any

BASKET OF SANTA FE COUNTY FRUIT.

other plant I know of. The great trouble with us is that we have too much rain, which makes it cabbage or bunch up. If we could have moisture just when we wanted it, and not too much, and such soil as you have in the West, we would make the finest tobacco in the world.

"Hoping to hear from you soon, I remain, your friend,

"W. G. PILKINGTON."

Comment is unnecessary. Tobacco is one of the most important and most profitable of crops. On the strength of the opinion above given, by one qualified by long experience as a grower and manufacturer to speak knowingly, I would warmly advocate your body's taking up the matter of careful experimentation in tobacco culture, with a view to its becoming established on a sound basis as one of New Mexico's products. I will be glad to render any assistance in my power to that end. I have written for information as to the best seed to use.

Very respectfully,

JAMES A. DAVIS,
Industrial Commissioner, A., T. and S. F. Rwy. Co., Chicago, Ill.

ALFALFA HAY.

The remarkable development in the West of the species of hay known as alfalfa, within the past few years, can not fail to interest the farmer immigrant. Special attention is now given here to the cultivation of that crop, and it has proved a great success. It is a plant of wonderful power of growth. As a rule, three cuttings a season are made in the North and five in the South, which will average for the season one and a half tons per acre to each cutting.

It is a species of lucern, a perennial, an enormously prolific grower, containing a very high percentage of nutritive matter, and is of such a hardy, aggressive character that once it is firmly rooted it requires little attention other than an occasional irrigation and harvesting of the heavy crop of hay which it produces. It is the fodder plant of this region and the one factor that will permit stock raising and fattening to be successfully carried on upon modern scientific principles in what has heretofore been known as the "arid region."

Formerly, from the want of some cheap fattening food, the far West was entirely dependent upon the agricultural States for its fattened beef. Cattle were shipped from New Mexico to Kansas or Missouri, fed there on corn, and then sent back as beef in refrigerator cars, to be eaten, perhaps, close to the place in New Mexico from which a few months previously the thin ox had been shipped, thus necessitating a double journey of 600 to 1,000 miles and an additional expense of 4 to 6 cents per pound for carriage alone. To-day a good percentage of the beef eaten in New Mexico is fattened here on alfalfa, and in the future, as more land is placed under irrigation, the proportion will be largely increased, for the profits are necessarily large, the cost of the double journey of the corn-fed beef being so greatly in favor of the New Mexico farmer.

Another, and perhaps a greater, revolution is being brought about by alfalfa, enabling New Mexico farmers to breed high-grade and thoroughbred bulls. Formerly ranchmen were obliged to go to the Middle States for the large number of high-class bulls they required for the improvement of their herds. The acclimatization of these upon the Western plains was accomplished by enormous loss, chiefly owing to the great difference in climate and pasture. To-day, with the aid of alfalfa, breeding such cattle is fast becoming an important industry in New Mexico. The climate here being the same and the grass similar to that upon the great cattle ranges, the mortality during acclimatization is slight, and cattlemen willingly give a higher price for a New Mexico than for an Eastern bred bull.

Another important consideration to the advantage of this grass is that as cattle can largely depend upon the nutritious native grasses during the winter, the New Mexico farmer has three great factors in his favor: First, a higher value for what he raises; second, less cost of production; and third, a practically unlimited market at his door, with no heavy freight charges to pay when shipping to the buyer—a combination of advantages that must soon drive his Eastern competitor out of the market, and leave alone in his hands a large and profitable business.

For all these reasons there will, for a long time to come, be an immense demand for alfalfa for cattle-raising purposes.

The same conditions apply to hog raising, and with equal force. It will doubtless sound strangely to the Eastern farmer to be told that hogs are here fattened for the market on alfalfa hay, but it is nevertheless true, and the meat thus produced is fully equal to, if not better than, corn-fattened pork. It seems to be as good for hogs as for cattle. It is becoming the rule here, and such hogs command high prices, as "hog cholera" is not known in these mesa regions.

Alfalfa is a perennial plant, and when once sown will last for many years. It is difficult to say how long it is profitable to keep the same field in alfalfa, but there are many instances of land that has borne crops of alfalfa for twenty years, and even for a longer period, without showing any signs of depreciation.

The seed is usually sown in February, on land already seeded to wheat, and oats are also frequently sown with the alfalfa in order to act as a shade to the young plants. But quite as good results have been obtained by sowing the alfalfa alone. The seed may also be put in the ground at the end of September. The young plants will soon appear above the ground and will continue to grow, in roots if not in leaf, during the greater part of the winter.

The cost of seeding an acre of land with alfalfa, from an estimate made in the Mesilla Valley, is as follows:

Plowing and harrowing	$5.00
Drilling seed	1.25
Making borders for irrigation	2.50
Twenty-five pounds of seed, at 8 cents	2.00
Total	10.75

The annual expense will be:

Cutting, raking, gathering, and stacking 3½ tons, at $1	$3.50
Irrigating six times, at 15 cents	.90
Water per acre	.75
Cleaning lateral ditches	.50
Baling 3½ tons, at $1.35	4.72
Hauling to railroad 3½ tons	3.50
Total	13.87

This makes the cost of the hay in the stack $1.60 per ton and not quite $4 baled and delivered on cars. Hitherto most of the alfalfa has been sold as hay, but much better returns are obtained by feeding it to live stock, for raising hogs, and dairy produce, which undoubtedly constitute the best products of the farmer. Alfalfa usually gives four cuttings in the year, but with care and plenty of water it would be possible to get five cuttings, yielding altogether five or six tons of hay. Owing, however, to a somewhat slovenly method of farming and the occasional lack of water, the writer places the average yield in the valleys at 3½ tons per acre.

MAKES GOOD PORK.

Wherever alfalfa can be raised the best as well as the cheapest pork and bacon can be produced, for alfalfa gives growth to the muscle, making the lean meat that is the best and sells the best. And while growing in the alfalfa fields the hogs get the exercise needed for healthy development. Wherever it will grow it may be made a highly profitable crop, and one that will get out of the swine industry its biggest possible results.

SOME GOOD THINGS ABOUT ALFALFA.

Alfalfa benefits lands for cultivation by opening up channels through compact substrata to a considerable depth, allowing the entrance of water and air. The roots have penetrated the most compact soil, and their power to enter through clay and hard streaks is great enough to make them excellent subsoilers. The soil of a field which has been planted to alfalfa has practically been deepened for subsequent sowing in wheat. We do not know of any observations having been made upon the root development of wheat in prairie soils, nor as to the depth to which they penetrate in the virgin soil, where there is a very fine, compact, and tough substratum, the result of settling and compacting of ages.

To plant such soil to alfalfa is to perforate this compact subsoil with numerous channels for the passage of water and air and for the entrance of other roots when those of alfalfa have rotted. The work done by alfalfa roots in accomplishing this is very great, but this work is to benefit the soil, to the advantage of the succeeding crops and to the profit of the owner, being the cheapest labor as well as the best directed and most efficient of any which he can employ. The great benefit accruing to worn-out wheat fields by being sown to alfalfa is a matter assumed to be a fundamental fact of New Mexico farming.

At average prices alfalfa hay does not bear transportation, except it can be converted into some more marketable form; and this has been the case for years. Until recently the fattening of steers was profitable, and consequently a favorite manner of marketing alfalfa hay. The hay was fed in the field, the animals pasturing and feeding on the ground upon which the crops grew; this was practically equal to returning the crop to the soil from which it was taken. Of course, the practice is not without some drawbacks; still the crowns were not trampled to death and the voidings of the animals were equivalent to manuring the surface soil with the crop grown upon it. There is no question that this is not an economical way of treating the manure; but, in spite of the losses, a large amount of the manurial elements of the crop were returned to the soil.

This does not hold for sheep feeding, and unless farmers pay more attention to the manure of the sheepfold, some of the beneficent effects of alfalfa growing observed in the past will be wanting in the future. The care of this manure is an important question to the people of this country. Alfalfa is a heavy feeder and lays a tax upon the soil for every benefit it bestows. The apparently wasteful methods of the past have tended to gain all the advantages from growing this plant and to obviate any disadvantages. If the same good results are to be maintained under a changing system of feeding, care must be exercised, and the manurial equivalent of the crop must be returned to the soil.—[Field and Farm.]

PROFIT IN ALFALFA.

[Carlsbad Argus.]

Alfalfa (lucern or Spanish clover) is the most extensive and lucrative crop grown in the West. This remarkable plant is one of the most valuable of nature's products. Once successfully planted there is no termination to its wealth-producing life. Its characteristics are as follows: The roots penetrate to the lower stratum of the soil and put it in excellent physical condition for corn, wheat, and any succeeding crop, potatoes especially, besides acting the part of a fertilizer, similar to red clover as used by all farmers in the East. The corn, wheat, and potato crops are almost doubled. It is easy to raise and secure a fine stand of plants if the soil be put in proper condition.

Its staying qualities are good, as the oldest fields show no diminution of yield; neither does it die by winter exposure. The quantity produced by the many cuttings makes it much more valuable than other clovers or grasses. It is as digestible as clover hay, taking constituent by constituent. Its chemical composition shows that it is a rich, strong food when properly cured. Its feeding qualities are excellent, being relished by all farm animals. It is also strong food when properly cured. Its healthfulness as a steady diet for work horses and mules is another of its strong points. The long life of work animals has no parallel in clover or timothy regions.

There are two methods of growing alfalfa: One is to irrigate freely and cut exclusively for hay, whereby four and sometimes five cuttings are harvested in a season, the total product being an average of about 5 tons an acre, worth from $5 to $7 a ton in the stack. Owing to the heavy yield of hay the total cost of producing and putting it in the stack does not exceed $1.25 a ton, leaving a net income of from $10 to $25 an acre. The other method of growing alfalfa is to cut one crop for hay and one crop for seed. The yield of the hay crop in this instance will average 1¼ tons an acre. The average yield of the seed crop is 5 bushels an acre. The largest yields of seed have been from fields which have been pastured during the spring months.

The seed is worth from $3 to $7 a bushel of 60 pounds. The total cost of producing alfalfa seed including harvesting, thrashing, and cleaning does not exceed $1.50 a bushel. In addition to the crop of hay and seed, the alfalfa straw and pasture remaining always sell at $2 an acre, net, making a total net annual income of from $10 to $20 an acre. When a stand of alfalfa is acquired it will last a lifetime; but where it has been produced a number of years it is frequently plowed under as a fertilizer, and lands so treated yield enormous crops of all kinds. In the irrigated districts of both Europe and America the demand for alfalfa seed is constantly increasing for reseeding land exclusively for its fertilizing qualities.

RANGE GRASSES.

There are about thirteen or fourteen different plants indigenous to New Mexico that, curing on the stalk, without cutting or labor of man, comprise the great bulk of the valuable fattening food for range stock. A short description of each is given below.

The majority of the native, uncultivated forage plants of New Mexico are grasses, and the others, such as sotol and prickly pear, impress one as rather queer stock foods. The grasses of this class belong to two different groups—those which grow in the moist and alkaline soils of the valleys and those which are found on the mesas, and whose only supply of moisture is the little rain that falls during the year. Where irrigation is possible the best of all forage plants—alfalfa—can be raised in such great abundance that the cultivation of few other hay or fodder crops is attempted.

Hilaria mutica (Galleta grass).—This grass is found principally upon the high planes on both slopes of the Rocky Mountains. It is also known in localities as "black grama;" is a perennial grass, spreading by means of thick, scaly, underground stems, the roots of which are very nutritious, and stock seem to relish them.

Paspalum distichum (joint grass).—This grass is also known as "knot grass" in some localities. It is adapted to warm, moist soils of alkaline tendency, and in New Mexico is most abundant on lowlands that are flooded occasionally, and upon the ditch banks late in the season. It is cut by the natives, to be fed green to stock before corn has matured. This grass is said to have some medicinal qualities.

Eriochloa punctata (Hamil).—Irrigated but uncultivated fields usually produce an abundant crop of the above-named grass each season. After the corn is "laid by," or during what little rain we have in the summer, this grass appears in the cornfields, along the ditch banks and the fence rows, and makes very rapid growth during the hot days of August and September. It produces an abundance of seed, and will reseed the ground each year. Land once seeded with it would produce a crop of fair hay after a crop of wheat has been taken off, and, so far as judged from an analysis, should be a valuable forage plant.

Panicum crus-galli (barnyard grass).—This rapidly growing annual is widely naturalized over the western and southern parts of the United States. As is indicated by its great geographical range, it has great powers of adaptation to climatic condition and is very variable, two well-marked varieties being recognized. It varies in height from a few inches to 5 feet and over, but the usual height is 3 feet. The natives cut this grass and feed it to their stock while green, before the corn matures. There is a difference of opinion as to the value of this grass as a hay crop. Some think it very valuable, while others think it worthless. It would be excellent to feed with alfalfa, and the two properly mixed would make a first-class combination.

Panicum obtusum (grapevine mesquite).—This is one of the native Southwestern grasses, found generally in the rich, loamy bottoms of the river courses, very rarely appearing on the mesas. It is a perennial which spreads rapidly, grows about a foot high, and produces a rather strict panicle of flowers. Stock seems to relish it. It does not grow tall enough to cut for hay, but would make a very fine pasture grass if supplied with water; its habits of growth and its great vitality would tend to prevent its being tramped out by stock.

Muhlenbergia texana (Texas drop-seed grass).—This is a perennial, growing upon the mesas and the dry, rocky hillsides. It is sometimes known as the "grama grass," and is probably as valuable as any of the true grama grasses; it is also called "mesquite grass." This plant rarely exceeds a foot in height, but it is a grass that is much relished by stock on the range. Occasionally, when the summer rains have been heavy, it is cut, cured, and baled along with the grama grasses and others, and makes a very valuable hay.

Lycurus phalaroides.—This is a common grass, and is usually found on the rocky ridges and hills of the plains, and not rarely in the mountains. It has been collected at an altitude in New Mexico of over 6,000 feet above sea level. It grows in bunches under the most favorable conditions to a height of 18 inches. It would only be valuable for stock when fed with something containing much protein and fat.

Sporobolus airoides (bunch grass).—This is one of the commonest of all the native grasses in the western United States, and is found in all arid portions of the Rocky Mountain region from Montana to Texas and west to California. It is perennial, forming dense tussocks on flat, dry, alkaline plains. While it is of no value as hay, it is considered a good pasture grass in some sections, and it certainly is of great value upon those alkaline "flats," which will support few other kinds of vegetation, since it flourishes in such localities, and stock relish it.

Dr. Rothrock says that this grass and another closely related species (*S. cryptandrus*) furnish a fiber which might be utilized in making paper or cordage.

Bouteloua oligostachya (blue grama).—This is the common grama, and is also known as "mesquite grass," and is frequently mistaken for the "buffalo grass" (*Buchloe dactyloides*), with which it at one time formed the bulk of the pasturage upon the Western plains and ranges. With the increased number of animals upon the ranges these grasses are being somewhat killed out, since they are very rarely allowed to seed, and thus few new plants are produced each season. It is a perennial, growing in small, dense clumps. It is not considered a very good grass for hay, but it is frequently cut and cured when standing with other grasses; but as a pasture grass it is probably the best of all native grasses. It is not easily tramped out and requires only a small amount of water. It grows rapidly and cures standing, and stock prefer it to almost any other rough food, even when dry.

Bouteloua polystachya (six-weeks grama).—This is a common name applied to two species of the genus Bouteloua, which are quite common and similar in character, and the two usually appear together. Both are annuals, and spring up in the open mesa just after the summer rains, and grow very rapidly, maturing in about six weeks. Under the influence of these grasses, plains that were entirely bare will turn green and become valuable pasture land in a very short time. It is considered a very nutritious grass for stock.

Bouteloua eripoda (woolly jointed grama).—This grass is also known as the "black grama," and forms a large portion of the native forage of this district. It is somewhat different from the other perennial gramas in habit, growing more like the six-weeks gramas. It does not grow in bunches or clumps, but is rather diffuse. It gets the name of "woolly jointed grama" from the fact that the internodes or "joints" of the stems are thickly covered with silvery white hairs. Late in the season the stems become dark colored, and from this it gets the name of "black grama." The analysis of this grass indicates that it is not so good a food as most of the other grasses, since it is particularly poor in protein.

Bouteloua curtipendula (tall grama).—The tall grama or "hairy mesquite grass" is perhaps the most widely distributed of any of the grama grasses, being reported from nearly all of the States west of the Mississippi River and from several east of it. It is usually found on rocky hillsides and along the bases of the mountains, though it is not uncommon in the valleys and on the higher parts of the mountain ranges, having a vertical range of three or four thousand feet. It cures as other native grasses do, and is considered a valuable feed by stockmen. Stock of all kinds eat it readily. It is frequently cut with other grasses by those who use and sell wild hay in this Territory. It has been recommended by good authority as an addition to the pasture grasses of Tennessee, and is said to be cultivated to some extent in the Southern States and to be much prized.

Eremochloe kingii Watson.—This is a small grass. It seems to be well fitted to the climatic conditions of high, dry, and hot plains. It produces a crop every season, no matter how little rain falls. Its nutritive ratio of 1 to 11.6 is much better than that of corn stover, and indicates that it may be a moderately good food. The plant is small and tough, and stock seem to eat it only when there is nothing else left. Its main value appears to be in the fact that it is almost sure to produce a crop when other grasses fail.

Distichlis spicata (salt grass).—This is the true salt grass (also known as alkaline grass), and it certainly deserves either name, since it forms a thick sod over these marshy, alkaline "flats" and "draws," which are of comparatively frequent occurrence in this Western country. It grows well where alkali covers the surface of the land with a thick, white crust, provided there be sufficient water to supply its needs. It is cut in some localities, making a poor hay, but in this Territory, as far as is known, it is only used for a pasture grass. Animals eat it readily while it is green, but it should not be fed by itself.

A description of a number of other varieties of forage plants might be given if it were not for lack of space, and I will only mention the names of a few others, such as the Milo maize and Kaffir corn, Italian millet, Pearl millet, alfalfa (on which quite an article appears in this report), mesquite, tornillo, prickly pear, and sotol.

I mention these grasses more fully than I would do, because in many instances the newcomer in New Mexico is impressed by the apparently barren stretches of mesa which surround the valleys. He is told that stock raising is one of the principal industries of our Territory, and he immediately wonders where the food of all these cattle, sheep, and horses is obtained. But the dry, barren mesa produces much valuable forage, and, with the increase in numbers of the stock upon the range, the animals have acquired the habit of eating anything in the way of vegetable matter which is at all digestible or nutritious.

OUR HOME MARKETS.

The manifold resources of New Mexico command notice from the home seeker and the immigrant, among other reasons, because it will be years before the Territory of New Mexico will produce sufficient to fill the demand of the home market. Pastoral and allied industries are inviting to the young farmer of the East who is seeking a broader field in which to toil, and where his renumeration will be more munificent than the Central and Eastern States allow.

The mineral wealth of the Territory and the surrounding States puts a higher premium on agriculture in New Mexico than is possible in Illinois, Indiana, or Ohio, for, while those States are fully equipped for horticulture and agricultural successes by excellence of soil and ample humidity, they are devoid of that large consuming element that produces no breadstuffs, yet delves into the earth and secures wealth which the producer of grains, fruits, and clothing needs as a reward for his effort. It is only in recent years that the manufacture of flour commenced in Colorado and has since partly supplied the demand in New Mexico. Previous to that time the supply was drawn from the East, 200 carloads coming to Las Vegas in a single year, and to other towns in like proportion. Every day in the year now trains roll into the Territory from the East, laden with the products of other States which can be made or grown within our Territory. There is an actual demand within the Territory for 20,000,000 pounds of flour annually; over 8,000 tons of corn are used, and the same general facts are applicable to the other articles of domestic consumption. In every instance there is an actual home market for everything the farmer and fruit grower raises. It is waiting for the home seeker and immigrant to supply it from the soil of the Territory of New Mexico. No one has taken the trouble to raise such articles in sufficient quantities in the past. But the era of advancement in this direction, having set in, only needs to be pursued a few years, when the industry of California will be repeated, and New Mexico will be shipping fruit to Europe. Now is the time for a start for many a young farmer from the older sections of the Union which have failed to give reward for industry. If he will head for the valleys of New Mexico, where new districts are being put under irrigating canals by heavily capitalized companies, he will be convinced, after investigation, that a sure road to wealth, independence, and health will have been entered upon when he concludes to cast his fortune with the coming State of New Mexico.

BRIGHT PROSPECTS—NEW MEXICO IS FORGING AHEAD AND IS ALL RIGHT IN EVERY RESPECT.

[Daily New Mexican, Santa Fe.]

"I tell you what it is," said Director Hardinge this morning to a New Mexican scribe who dropped into the weather bureau office in the eager and happy quest for general information, "the press of the Territory is going it strong on the mining affairs of New Mexico, and we are told in glowing, golden words of new 'strikes' and 'leads' and of big 'deals' that make our mouths water; and it all may be true—I hope it is—but this part of the country is going to get a stronger push toward lasting development this year from its fruit, farming, and stock interests than it is likely to get from all the 'strikes' yet struck.

A BANNER YEAR.

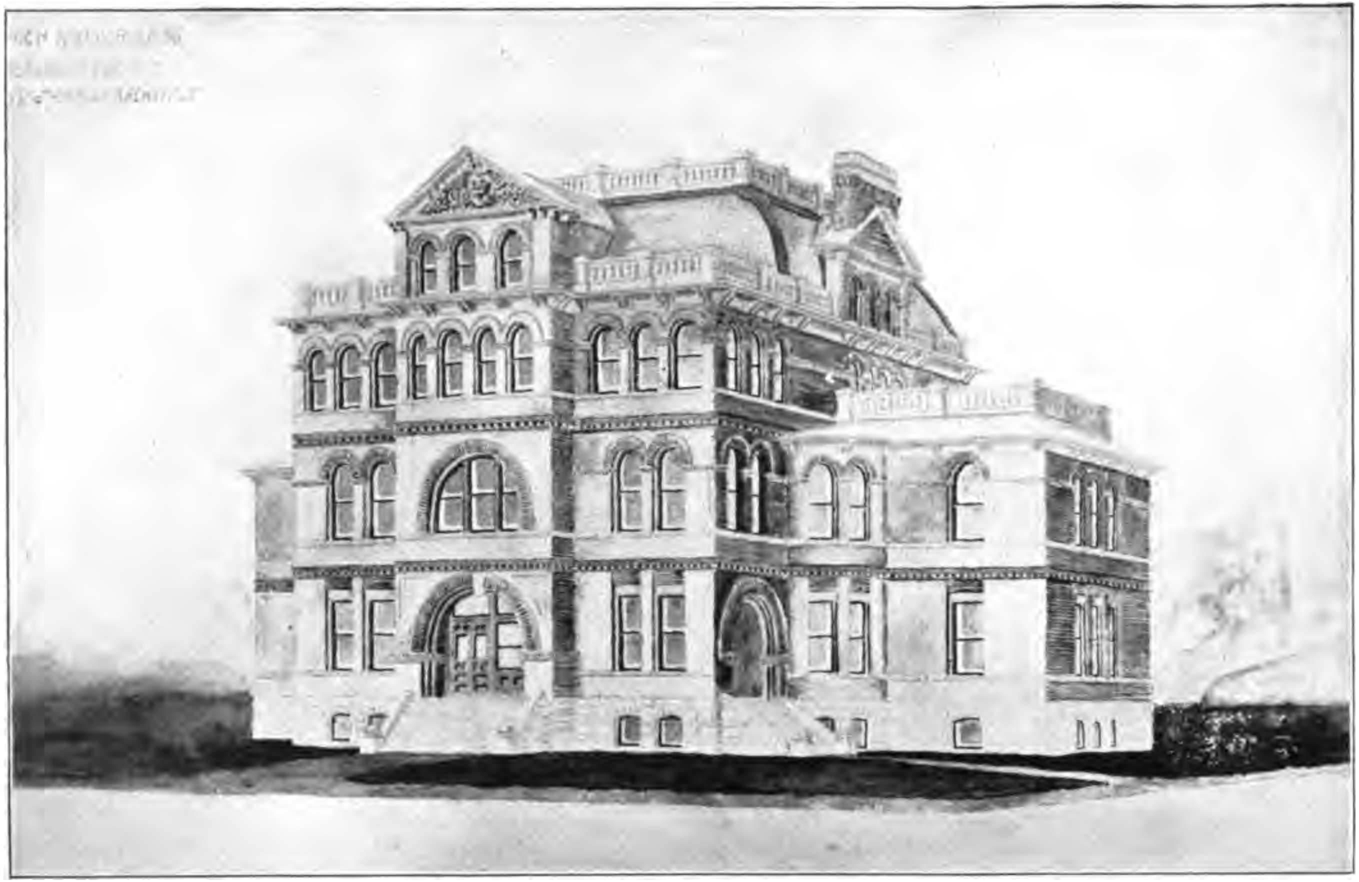
"It may be somewhat early in the season to make a forecast; but if one can judge from present conditions this will be a banner year for New Mexico in these things. Of course, there are bound to be a few scattered localities that are not blessed in every particular. For instance, apricots will be a very short crop in nearly all central and northern orchards, nor are early peaches any too promising for these localities; or the late frosts may have nipped early potatoes, etc., in some more exposed gardens; or some districts may be short of water, as until very recently down in the Mesilla Valley; but the general prospects for vineyards, orchards, field crops, and for stock are very promising just at present.

SPLENDID PROSPECTS.

"If the season continues so favorable—and the probabilities are that it will—the immigration bureau will be worked to death next year and will look back upon its present strenuous labors with a sigh for the halcyon days of the past. Already a higher tide seems to be setting our way. Since the 1st of January last this office has received more applications for climatic data than for any whole year previous. Physicians, tourists, dissatisfied Eastern farmers, are all getting into an inquiring mood as to what New Mexico has to offer. Just this morning I had a letter from a young man now living in Michigan, who was a former volunteer observer of this bureau at Monero, and he wants to come back to New Mexico, and wants to bring two more ambitious young men with him, believing this to be the place. New Mexico has little trouble in holding what she gets, and those once induced to come here are bound for life. Yes, I am enthusiastic about our prospects just now, and I think we all have a right to be."

BRIEF INTERVIEWS WITH PROMINENT PEOPLE FROM ALL PARTS OF THIS GREAT TERRITORY.

In his rounds among visitors from all parts of the Territory at Santa Fe, June, 4 to attend the capitol dedication exercises, a New Mexican scribe found them all talking New Mexico's prosperity.



HIGH SCHOOL BUILDING, ALBUQUERQUE.

RAILROAD EXTENSION.

Hon. J. F. Hinkle, Lincoln County: "The cattle and sheep industry is on a boom in our section. The ranges of Lincoln, Eddy, and Chaves counties never looked better. Farming and mining are receiving more attention than ever in history, especially alfalfa and coal, two great staples with us. The El Paso and Northeastern road is to build northeast and may send a branch up toward Santa Fe to connect with the Denver and Rio Grande system. Along the line of the Hagerman road the country between Amarilla and Roswell looks like one great wheat field. I never saw it looking so pretty. There will be a fair crop of fruit only in that region, hail having done some damage."

FINE FRUIT PROSPECTS.

Hon. Malaquias Martinez, of Taos: "Our county will break its long and honorable record as a producer this year. The fruit is the finest we ever had. The alfalfa, hay, bean, and corn crops never promised better. As the New Mexican recently remarked, Taos Valley surely does need a railroad. The lamb crop this season adds about 95 per cent to our already large flocks. The mining operations are starting off satisfactorily, though work in the higher mountainous districts is yet retarded by snow. The Copper Hill Company, which has invested $150,000 in a big mill, now has water flowing into its reservoir, and will begin treating ore in a few days."

ALFALFA A FEATURE.

Andy Horn: "The Pena Blanca section of the Rio Grande Valley has made up its mind that alfalfa is the thing to raise. We have a fine broad valley, the climate, and plenty of water, that yields us four cuttings of alfalfa a season, besides giving pasturage. Quite an industry in baled alfalfa has already been built up. Much of it goes to the Cochiti mining district. There is a large increase in the acreage this year. The two new bridges on the Bland road, some of us think, ought to be connected by a frame trestlework. Between them water is now running hub deep over the island, and the Rio Grande is not near so high now as it is likely to be in thirty days."

DECREASE OF CRIME.

Chief Justice Hon. W. J. Mills, of Las Vegas, arrived in the capital to preside over the capitol dedication ceremonies. Although court is in session, he took a day off in order to attend this memorial occasion. In speaking to a representative of the New Mexican the chief justice stated that crime had materially decreased in San Miguel County, and that, in fact, no serious crimes had been committed during the past six months in that county. The grand jury, now in session, has found but one indictment of any consequence, and that for cattle stealing. No murder has been committed in the county since the last term of court. Judgment has been obtained by the county against Carlos Gabaldon, defaulting county treasurer, and his bondsmen for $7,500, and his trial will take place shortly on a criminal charge. The judge complimented the good people of Las Vegas and San Miguel County upon this most gratifying condition of affairs. From a material standpoint he said that Las Vegas was growing continually and continuously, and that the stock raisers, the sheep men, and the farmers of the county expect a most prosperous year, which, of course, would benefit the merchants and the community at large.

THE GOLDEN COCHITI.

D. B. Wilson, miner, Bland: "The golden Cochiti is being well prospected this spring. The gold-producing area promises to be materially extended before the summer is over. The town of Bland is rather dull just now, owing to the failure of the Navajo company to push work as rapidly as was expected on its new 350-ton mill, but we are looking forward to a genuine boom before the fall season opens. The ore bodies, of mammoth proportions, have been sufficiently opened to show that the pay is there in immense quantity, and there is a good deal going on in the way of new capital coming in. Many influential experts, representing New York, Boston, and Denver capital, have of late made careful examination of the district for people seeking investments in the camp, and as a result several big deals are pending, the closing of which will excite fresh interest in the Cochiti district."

WONDERFUL ALAMOGORDO.

Dr. George C. Bryan, of Alamogordo: "Otero County continues to move along quite close to the head of the procession of progress and prosperity. Our town is showing a steady, substantial growth, and new settlers coming in from Pennsylvania, Kansas, Missouri, and Texas are keeping the country round about well up with the town. Alamogordo is headquarters of the El Paso and Northeastern Railroad, which has proved a dividend-paying corporation from its very inception. The road is now doing a large business, especially in handling coal and lumber."

EDISON'S PROCESS A SUCCESS.

S. G. Burn, manager of the Galisteo Mining Company: "The Edison experimental placer gold plant is a pronounced success. That's all we can say about it at present. The machine has been in daily operation for more than a month, President Hoyt being constantly on hand to note its work, and the results have given us the greatest satisfaction. You can imagine we were pleased the other day when we felt that the time had come when we could safely communicate this fact to Thomas A. Edison and the Eastern directors of the Galisteo company. We have great plans for the future which can not just yet be discussed. Mr. Edison hopes to come out this summer to see the little plant in operation before we commence work on the larger one. Perhaps he will reach Dolores this month."

THE MESILLA VALLEY.

Maj. Eugene Van Patten, of Las Cruces: "General business conditions throughout the Mesilla Valley are first class. A large acreage has been planted by the agricultural folk, our fruit is now beginning to ripen, and shipments will be in full blast in another two weeks. The live-stock industry is doing nicely, and best of all, the ditches are full of water for irrigation of the crops. We count on the most prosperous summer and fall trade we have enjoyed in years."

THE MEADOW CITY.

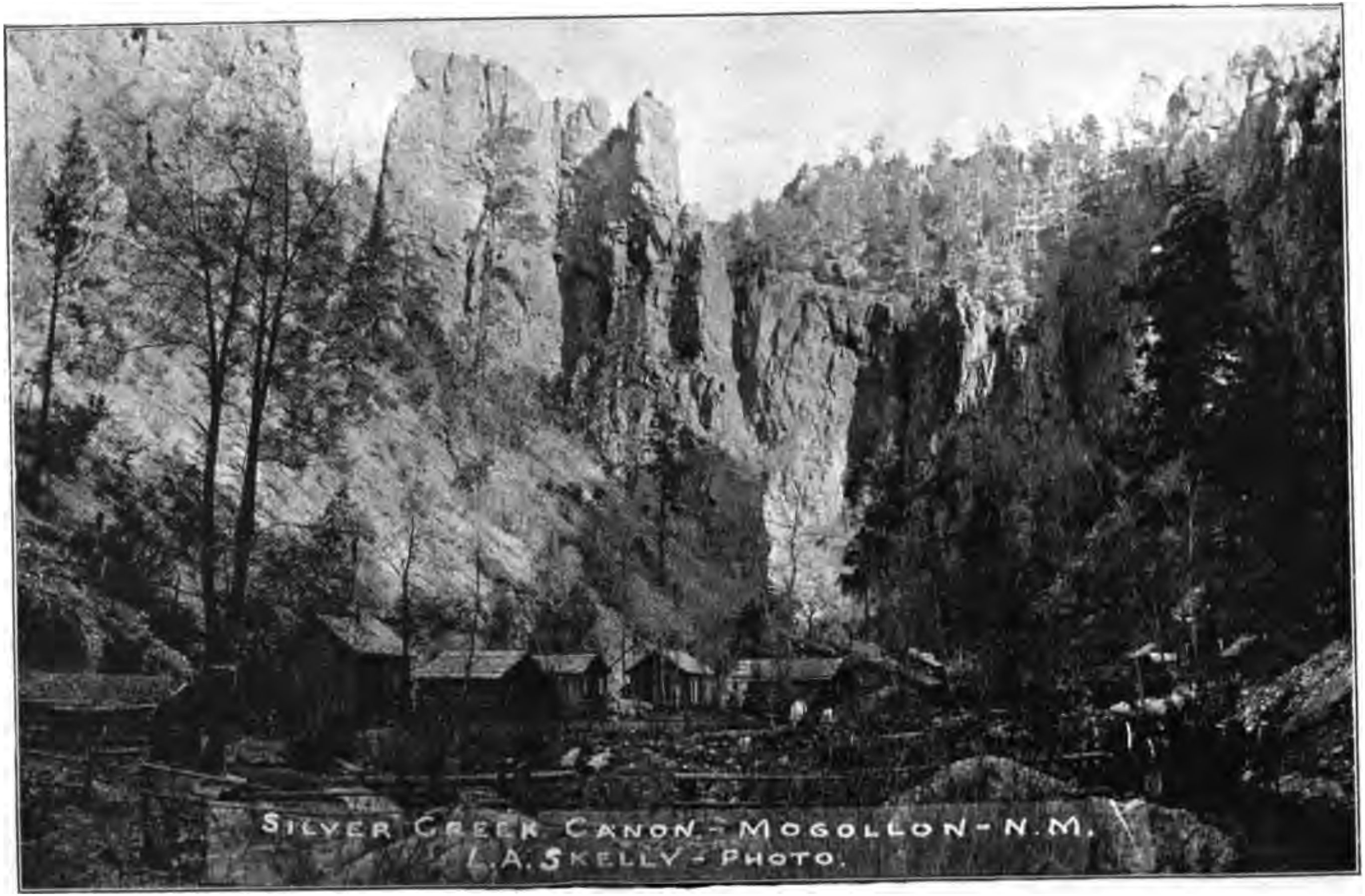
Hon. M. W. Browne, of the firm of Browne & Manzanares, of Las Vegas: "We Las Vegas people are glad to renew our friendship with the citizens of the Territorial capital on this happy occasion. Business? Oh, it looks mighty good over our way. San Miguel, Mora, and Guadalupe counties are prospering, and when that is the case Las Vegas reaps a large share of the good results by reason of her importance as a commercial distributing point. A great many of our townspeople are out on the ranches just now attending their herds and flocks. We pride ourselves, you know, on being the chief wool marketing center. Las Vegas is growing right along. Many very attractive residences and business blocks have gone up in our midst during the past year and we are still building."

SIERRA COUNTY.

Hon. W. S. Hopewell, of Sierra County: "Live stock and mining are the chief industries with us, and you can say that little Sierra County is making progress and doing well. As to mines, we have in the Black Range Mountains a region of virgin country that is just now attracting widespread attention, and there are far-sighted men who think that the next great mining excitement to strike the West will be centered in this range. Cattle and sheep are away up in price, and that pleases the producers, though our one special need just at present is a thundering good drenching rain to help out the live-stock range."

THR BANNER MINING SECTION.

Hon. W. H. Jack, of Silver City: "We Grant County people still claim the banner as a mining section. Our mines have for years led every other county in New Mexico in the line of mineral productiveness. During the past six months Silver City has attracted hundreds of mining men from Colorado and California, and I am within the bounds of truth in saying that many millions of dollars have been expended by them in Grant County properties. Our gold, copper, iron, and silver mines have been well developed, and this accounts for the readiness of investors to take hold of them. The live-stock industry throughout all New Mexico is in gilt-edged shape—never better."



SILVER CREEK CAÑON, MOGOLLON, N. MEX.

IN TAOS COUNTY.

Dr. T. P. Martin: "In my long residence in Taos Valley I never saw northern New Mexico in better physical and financial shape than to-day. So far as I have heard all lines of trade and industry are prospering beyond precedent. I see nothing in sight at this time that can block the wheels of progress. Outside capital in abundance is pouring in to help us build up 'the sunshine State.' Certainly the year 1900 bids fair to be by far the most prosperous in our long history."

MINING.

GEOLOGICAL ASSOCIATIONS IN NEW MEXICO MINING CAMPS.

SIR: In accordance with your request, I transmit herewith a short account of the geological associations prevailing in a number of the mining camps in the Territory. While the data incorporated in this report are not all strictly of an economic nature, it is hoped that they may prove of practical service in the hands of intelligent mining men by aiding as much in the avoidance of unnecessary expenditure as in the direct exploiting of the mines. These data are derived from the work of the geological survey of the University of New Mexico, and form a part of the material to be published in extenso in the second volume of the report of that survey now in course of preparation.

Notes on economic geology of New Mexico.—It may be premised that the Territory of New Mexico is of so enormous extent that it follows as a natural consequence that its geological and economic relations differ in its different portions so entirely that the work done in any given area is no sufficient guide for work in other portions. It is necessary to carry the minute study of the formations into every section of the Territory before reliable generalizations can be formed.

The work has proceeded far enough, however, to enable us to deduce a number of general principles, which if they had been recognized a few years ago would have saved an enormous sum to the Territory, and would have done much to have conserved her good name as a mining country.

In spite of the diversity in details, the Territory is sufficiently homogeneous geologically to enable us to treat it as one geologic terraine. Most characteristic of the geological features of the section is its newness. For the most part the rocks which cover its surface and determine its topographical and economic character date from recent geological ages. The latest of the great geological cataclysms, the descent of the glacial ice sheet, has scarcely affected the Territory directly in any part. It is true that there are evidences of local glaciers in a few places and that the valley of the Rio Grande is, in its upper courses, to some extent filled with material that may have been transported by the floods from the melting ice of the continental glaciers farther north, but otherwise the Territory is innocent of the wonderful glacial phenomena of the Northern States. The effect of this escape from the educating effect of the "great, cold, continental sorrow" is discoverable in a crudeness of topography, an angularity of outline, and unretentiveness of soil that has a very important effect on the economic development of the Territory. As an acute observer said many years ago, Arizona and New Mexico are the best drained parts of the United States. The effect of the ice sheet was to pulverize impact and to fill with impervious basins lined with clay the vast thickness of soil it produced. In New Mexico the soils are either due to the disintegration of the rocks in place or to the collection of débris carried by streams.

This fact, in connection with the loose and friable texture of the recent rocks so largely making up the surface deposits, tends greatly to facilitate the escape of the waters from precipitation and from incoming streams. Nor is this simply a curious fact, for it is fraught with tremendous import. In various parts of the Territory, with similar climatic conditions, entirely different crops are demanded. Potatoes will grow in one canyon and not on the opposite side of the same range or in an adjacent canyon. This lack of homogeneity in the soils of the Territory is seen equally in the nature of the plants naturally growing in different places at the same altitude, and makes necessary a minute study of the soils from a geological point of view all over the Territory.

The climate, in like manner, reflects the soil conditions. No one has sufficiently emphasized the effect of soil in determining the climate of New Mexico. It may be confidently stated that there is enough rainfall to insure the growth of crops in many if not most parts of the Territory without irrigation if only the soil were sufficiently retentive to hold and utilize the precipitation. To this may be added the well-nigh demonstrated probability that if the soil were more retentive this in itself would tend to increase and distribute the rainfall. In this fact there is hope, for if sufficient pains are taken to preserve and extend our forest areas and to increase the cultivated lands we may hope for a gradual modification of the climate and a tempering of the violence of the storms and greater distribution of precipitation. It has been possible to show that the local rains of this Territory are extremely sensitive to the radiant heat from the surface beneath, so that a bare extent of sand will actually ward off rains which fall about it.

The oldest rocks in the Territory known to the writer are granites and gneisses, which are generally only visible where the overlying rocks have been removed by erosion or faulting. Large areas of granitic rocks, however, are exposed in the northern part of the Territory, and in them are found quarries of mica, while they afford a good association for the metals when penetrated by basic rocks of later date.

These granites are exposed in the ranges bordering the Rio Grande south of Santa Fe, where they lie unconformably below a quartzite of varying thickness, and this, in turn, supports the great Carboniferous limestone series, which here attains a thickness of over 700 feet. The age of the granite has been a matter of controversy, but it is certain that it is metamorphic and represents some formation older than the Subcarboniferous. Beds of metamorphic limestone have been found in the midst of the granite.

The contact between the Carboniferous limestone and the quartzite (the place of which is sometimes taken by other modifications, such as a coarse conglomerate with pebbles from the underlying granite) is quite frequently impregnated with iron, and when this is the case the iron often forms a precipitant for copper. Such accumulations occur in the mountains of Post-Carboniferous age along the Rio Grande Valley in the Oscuro, San Andres, Organ, Caballo, and other ranges. Veins in the limestone admit solutions of various substances, which penetrate to the quartzite or granite, and at that point, in the presence of air and water, the iron reduces or precipitates the copper. Thus have been formed local deposits, which are richest on the exposed surfaces and make a fine showing. The ore is of chalcocite, cuprite, melaconite, malachite, and azurite, and is often very rich. All these deposits are, however, fickle and superficial, and while they may reward small capital are rarely of sufficient extent to warrant great expenditure.

The source of much of the copper in the Territory is, however, to be found in a formation above the Carboniferous and only separated from it by the obscurely-defined Permean formation (which latter consists of limestones, shales, and sandstones assimilating with the Carboniferous below, and in some cases apparently passing by gradations into the Jura-Triassic). This formation (the Jura-Trias) is composed for the most part of red or maroon shales and sandstones, often attaining great thickness, but in central New Mexico usually limited to a few hundred feet. Although nearly devoid of fossils, this sandstone frequently contains large trunks of trees as well as leaves and branches which, in some cases, are fully silicified, while in others they are changed to coal, and in still others the carbon has been substituted for by copper. The latter process is easily intelligible chemically if water charged with copper in solution were present during the decomposition of the organic matter. These beds of vegetable matter accumulated in shallows of the ancient sea and form lens-shaped masses usually of no great extent. In some cases large trunks are fully transformed to copper ore, while in others only part of such a trunk is so transformed. In still other cases nodes or concretions of copper accumulate in shales of this series. There has usually been surprisingly little alteration in the copper in these shales, and the nodules then consist of pure copper glance or a mixture of the glance with iron. The Jura-Triassic sandstones are widely distributed and are easily recognized by the red color, and the occurrence of copper in the beds is almost as widespread as that of the formation. Such deposits occur at different places along the east side of the Rio Grande from the San Andres Mountains northward and are continued into the Mora region, also in the Jurassic deposits west of the Cochiti and thence westward. In some cases the strata are tilted and the alternate soft and hard layers leave long parallel ridges of the indurated sandstone that have been mistaken for igneous dikes and have led to an entirely wrong idea of the nature of the ore bodies.

The following formation is the Cretaceous, which is represented by a vast series of yellowish and gray shales and sandstones. The latter often afford available building stone, while the shales are in a number of widely separated basins interstratified with coal seams. Above the Cretaceous or unconformably deposited about its eroded and faulted edges are the marls, clays, and sandstones of the Tertiary age. In these beds there are few elements of economic importance aside from clay for brick. The Tertiary beds tend to be strongly modified by proximity to other older rocks, or rather they are composed of the débris from the destruction of their predecessors, and accordingly assimilate in composition and appearance to the parent rock. Thus, in a region underlaid by Jurassic rock, the Tertiary may assume the same red color, and in the vicinity of the great lava flows the materials of the Tertiary are largely or wholly derived from the products of eruption from these craters, as may be seen in the vicinity of the tufa flows of the Cochiti. Material for excellent brick has been found in the dark-blue shales of the Cretaceous, as at Las Vegas, but for the most part the fictile clays must be sought in the products of river erosion. A curious exception is afforded by certain Carboniferous shales and fire clays east of Socorro and in the product of alteration of andesite and other basic rocks, where they have been covered by trachytes and other acid rocks. The reaction between these rocks in favorable circumstances produces a kaolinization of the feldspar and the removal of other ingredients, leaving fine white china clay as a result. Such beds are to be seen in Socorro Mountain and elsewhere.

The most important storehouses of the precious metals are found in the igneous or volcanic rocks of the Territory. From this list must be eliminated the last and most conspicuous class of such eruptives—the basalt flows of Post-Tertiary age. A very large part of the Territory is dotted with craters, from which the lava sheets have spread for many miles. This basalt is later than, and so covers, rocks of all ages, except the deposits of the rivers. Where the underlying soft rocks have been undermined by percolating water, as has often occurred, the sheet breaks down irregularly under its own weight and produces what is aptly called "mal pais," or bad land. No substance of economic importance has been found in these basalts, though they are rich in iron, and the heat evolved by the thin sheets has been insufficient to be instrumental in the segregation of ores from other rocks.

The remaining igneous rocks may be grouped into three general classes of intrusives—the andesite series, the trachyte series, and the rhyolite series. The first and oldest of these is the class of basic eruptives, mostly dark-bluish or brown rocks, with white crystals of feldspars mottling the homogeneous background, and, when these crystals are conspicuous enough, constituting what the miners call "bird's-eye porphyry." This rock is one of the most general sources of gold—that is, it almost constantly forms the country rock or is in some way associated with the gold ores. It is true that the andesite is not in itself a suitable rock in which to seek appreciable quantities of the precious metals, but when it has been greatly influenced by the quartziferous later intrusives, so that it is shot through and through by dikes of felsite or quartz, or where flows of these other rocks are interbedded with the andesite, the segregation of more or less of gold and silver may be said to be the rule. This is a fact that will be of the greatest possible help to the prospector as well as the mine reporter.

It is not always easy for the untrained eye to distinguish the andesite from other dark rocks with porphyritic inclusions, and there are light-colored and tufaceous phases of the andesite. Sometimes even the trained petrographer will be deceived or in doubt till he has the opportunity to use the microscope. The geological survey of the university offers its services in making such determinations, and it is well supplied with the necessary instruments.

If we were to name the mining camps where the country rock of the gold dikes is formed by the old andesite series of eruptives, nearly all the important mining camps would be included. The Mogollons, for example, afford illustrations of central andesite mountains covered and penetrated by later flows of trachyte and other acid eruptives. The same is true of the Black Range and of the Magdalenas. The Cochiti is a beautiful illustration of an isolated group of andesite peaks surrounded by a girdle of trachyte and obsidian eruptives. Here the form of the later eruptive is scoriaceous, and the beds of tufa cover vast area and no doubt protect many rich lodes from the destroying hand of the miner. In southern Colorado we have traced the applicability of the same law. The Cerrillos group has but a small core of andesite in the midst of later material, but forms, with the series of mountains to the south, a special case.

The Ortiz Mountains, for example, are chiefly composed of a remarkable rock of a granitoid appearance, which proves to be a rare species of ægerine syenite, but intermediate between an acid and basic rock. This extends in vast sheets over the Cerrillos coal fields, and in some cases interpenetrates the coal series, and has been the agent in the transformation of part of the lignite into a fine quality of anthracite. The radiating dikes of the same material form conspicuous landmarks in this region. The mines in the Ortiz are due to quartz intrusions in this material, which plays the same part that andesite does in other cases, and, moreover, it is intimately associated in many places with the true andesite. The southern part of the Cerrillos Mountains is made up largely of the same syenite, which has a decidedly greenish color in typical specimens, but there are also dikes and bosses of andesite immersed in the later flows. The syenite in this case has been intimately blended with fragments or great masses of the sedimentary rocks through which it has broken its way. These rocks were mainly Jura-Triassic and Cretaceous. It would appear from a careful study of the region that the turquoise owes its origin to action of the molten syenite on the copper-bearing sandstone of the Jurassic it had caught up in its escape. In the same way the deep deposits of lead and zinc may be explained as a result of the action of these flows upon the underlying Carboniferous. Other instances of this kind bear out the theory of such interaction.

The San Pedro Mountain is a more complicated instance of the interrelation of the andesite and syenite flows. The central part of the group is an old andesite volcano, but it has been thoroughly transformed by the intrusion of the syenite, so that the two rocks are apparently interbedded over the central parts. To the east the syenite is the prevailing rock, and large sheets and dikes of the same material occur. As in the case of the Cerrillos, the flows have caught up and uplifted the sedimentary sandstones and limestones. A curious garnet rock has thus been formed, and along the contacts of this are large deposits of copper and gold. The andesite and syenite association is also a good one for gold, and the region is a favored one in its geological construction, though somewhat circumscribed and disturbed. The effect of the eruption has made itself felt on the Carboniferous limestones and, as in similar situations elsewhere, the contained lead and silver have been segregated by this agency, forming valuable mines.

South Mountain is also a syenite uplift, but the andesite element is lacking, and accordingly there seems to be no separation of gold. The adjacent limestones have, however, produced rich lead-silver deposits of rather small and irregular nature.

In the Santa Rita district we have an illustration of the application of another principle. The region is essentially granite, the granite being, like that elsewhere in the Territory, of a metamorphic nature. Upon the granite and its superjacent quartzite or conglomerate is a large sheet of limestone of Subcarboniferous age. Along the Hanover Creek is a ridge-like uplift, from which the lime dips both ways, revealing the fact that at the contact of the lime with the underlying granitic rocks there is a collection of iron. In this case the iron is of great extent and good quality. In many places the iron has served as a precipitant for copper in the way above described, and large copper deposits occur. In the Santa Rita district proper is a large basin, affording an extraordinary opportunity for such precipitation. The basin is not of recent origin, as is seen by the occurrence of artesian water and the extensive alteration (kaolinization) of the feldspars in the porphyrys and granites of the basin. The iron may have come from the disintegration of the granite. The basin seems to have been formed by an uplift and fault to the south, cutting off the natural outlet. The iron appears on the margins of the basin and doubtless played its part in the collection of the magnificent copper deposits. The country rock is chiefly an orthoclase porphyry. The ores may originally have been in the form of the sulphides, but they now embrace the entire range from native copper, in beautiful plates and concretions, to malachite and azurite. Melachonite and cuprite are the characteristic ores in many of the openings.

The above instances are cited to illustrate principles which the observant miner may apply for himself. A few of these points may be summarized as follows:

Gold and silver are indigenous to the older eruptives, but require the influence of later siliceous rocks to segregate them. They need not be sought in the later trachyte or rhyolite rocks unless there be present andesite or other basic rocks. It is useless to search for ore in the recent basalts. Copper is indigenous in the Jura-Triassic sedimentary sandstones, and may be found in organic deposits. It may also be found in the contact between the stratified rocks and the underlying granite, but peculiar circumstances alone warrant the hope of discovering large accumulations in either instance. Such a condition is afforded when the granite forms a basin and when iron deposits have preceded the copper. Lead is to be sought in the Carboniferous limestones where the latter have been brought within the segregating influences of dikes of older eruptives. The lead will be found in shoots or channels worn in the limestone or in more permeable zones. The silver values are likely to be greater where the lead has been sublimed by heat. The original form of the lead is as galena, and the occurrence of carbonates indicates a concentration by water action. Turquoise is a result of metamorphism of copper-bearing stratified rocks by the action of intrusive igneous rocks.

These aphorisms might be largely extended, but may serve to indicate the tendency of recent research and the scope of the work now under way.

Very respectfully submitted.

C. L. HERRICK.

Hon. MIGUEL A. OTERO,
Governor of New Mexico.

Cañon of the Rio Grande River at Walmsley's Crossing, Taos County, N. Mex.

NEW MEXICO MINERALS.

GOLD, SILVER, COPPER, LEAD, AND IRON.

RICH FIELD FOR PROSPECTOR AND INVESTOR IN EVERY COUNTY IN THE TERRITORY—THE CLIMATE PERMITS OPERATIONS THE YEAR ROUND.

That the whole mountain region of New Mexico presents a sure prospecting field is a safe assertion. To say that a few favored spots at which developments have taken place—merely points on the vast area of known mineralized territory—show even a small part of the great resources of our mountains is false. In the heart of the best developed camps is still much virgin ground, and much of the mineral-bearing area has scarcely been scratched by the prospector's pick. The chances in this Territory to-day are equal to those presented by the Cripple Creek or Leadville districts.

New Mexico has upward of 80 mining districts, which are widely distributed, proving that the mineral wealth is not confined to one section.

In the northwest, San Juan County presents great possibilities for extensive hydraulic operations.

Next, to the east, is Rio Arriba, where many thousand acres carry placer gold in sufficient quantities to permit of large enterprises. Perhaps no stream in the West presents the same advantages for the successful employment of first-class placer dredging machinery as the Chama. This gravel runs by test from 35 cents to $1.25 and in some cases as high as $1.75 per cubic yard. The famous mica beds are also in Rio Arriba County.

Taos County is not only a rich field for the placer miner, but for quartz mining it has districts already developed which indicate its boundless wealth. The Red River country is already well known to the mining world and is rapidly making a reputation as a producer of gold. La Belle and Amizett are also vigorously pushing to the front, development showing great possibilities.

Colfax County has already produced many millions in gold. Comprised within the boundaries of the Maxwell grant in this county are a large proportion of mineral lands, and the liberal terms given to prospectors by the grant owners is worthy of notice. Among the districts on this grant are Old Baldy, a large producer of gold; Ute Creek, where is located the famous Aztec mine, with a record of almost $1,000,000, and the Montezuma, a producer of about $300,000. There is great activity in Moreno Valley and in the Elizabethtown placers, which have to their credit over $200,000 in gold. Hematite is another promising camp in the immediate vicinity.

One of the richest mineral regions of the world is to be found in southern Santa Fe County. The placers at Dolores, Golden, and San Pedro, which were worked more than two hundred years ago by the Spaniards and are still being worked with "dry washers" by their descendants, have an inexhaustible supply of paying gravel, and the mountain range is one vast upheaval of mineralized rock. Cunningham Hill, in this district, is famous as being a mountain of ore. Dolores, San Pedro, and Golden were all mining camps before the discovery of Pike's Peak. At Dolores the Ortiz mine was a producer for years, the first milling machinery for the mine having been freighted across the plains before the advent of the railroad. It has a record of several millions, and preparations are under way to make the mine an extensive producer again. Near the Ortiz mine is the Benton, also a heavy producer of gold in former times, but idle for several years owing to litigation. The Benton is now in the hands of the Waddingham estate. Near San Pedro the most noted properties are the Lincoln Lucky, the Gold Standard, and the Santa Fe Copper Company's mines. The Gold Standard has recently been bonded to capitalists for ninety days at a comfortable figure. At Golden is also located the Monte Cristo Mining Company, which is successfully working the immense gravel deposits on a large scale. Near Cerrillos is situated the turquoise mines. The output of turquoise since 1890, according to official report, has been about $2,000,000, although the former owner of the property claims this to be an underestimate, and says the yearly output since 1893 will reach $1,500,000.

Bernalillo County has 5,000 square miles of mineralized lands. The Cochiti district, in the Jemez Mountains, is becoming almost as well known as the far-famed Cripple Creek, and is willing to dispute with the latter the title of the "greatest camp on earth." The Albemarle has one of the finest milling plants in the West, and the returns from the company's mines are a substantial proof of what energy and capital will accomplish in New Mexico. Others of the best-known properties in the district are the Washington, Lone Star, Crown Point, Iron King, and many more. Hell Canyon, 20 miles to the east of Albuquerque, has some large bodies of free milling ore and fine indications of copper. Considerable work is now being done in the district, and the near future will see it attracting the attention it deserves.

The Magdalena Mountains, in Socorro County, have been for years the scene of great mining activity. Lead-silver ores abound in the district, and late developments at Water Canyon and Copper Creek show good bodies of gold ore. The Graphic mines, under the management of Capt. A. B. Fitch, are well-known producers, and are at present being worked to full capacity day and night. The Kelly mines are also located in these mountains. In western Socorro County, near the Arizona line, is the Cooney district, rich in high-grade silver ores, but now being worked for their values in gold.

The far-famed Black Range of mountains, extending through Sierra County in a northerly and southerly direction, form the Continental Divide and constitute one of the greatest mineral sections of the world. From San Agustin plains on the north to Cooks Peak on the south, about 120 miles, and with a breadth of 40 miles, is a vast mineralized area which has been producing gold, silver, copper, and other precious and useful metals for years. The established districts on the north most largely developed are the Black Range and Apache, whose possibilities are as yet practically untouched and are beyond estimate. Following the range south are the Animas, Lake Valley, Percha, and Kingston districts, the principal mining centers on the belt above spoken of in Sierra County. At all these points are highly productive gold and silver mines. The ore from the Silver Cell, one of the deservedly famous mines in this range, was so rich that it was refused by the smelters and had to be sent directly to the mint as bullion, and the "Bridal Chamber," in the same range, took out in one piece silver valued at $80,000. One chamber, with the dimensions of an average dining room, surrendered to its lucky owners more than $1,000,000. Is it not time for capital to more thoroughly investigate a country with such stores of wealth? The immense gravel beds, rich in gold, at Hillsboro should also be mentioned.

Grant County has within its boundaries some of the best-known gold-producing camps of the Southwest. Santa Rita del Cobre, the oldest district, has been worked since 1808, and its mines are rich in copper. Pinos Altos has a number of large producers, and the results accomplished in the past two years are proof of what capital and judgment are capable. San Francisco and New York mining men are large holders of Pinos Altos properties, and their presence in the district is felt. Hanover is rich in copper, and developments at present make special reference to the camp or individual mines unnecessary. Its ores are rich in copper, with an excess of iron. Cooks Peak is a heavy producer of lead-silver ores, and the shipping records of its many producing mines are its recommendation. Other camps in Grant County which are attracting their share of attention are Central, Gold Hill, White Signal, and Black Hawk, all rich in gold, silver, copper, etc.

Dona Ana County is dotted and crossed with mountain ranges which are pregnant with mineral wealth. Mines in the Caballo Mountains carry lead-silver ores; those of the Organs are rich in native silver, and in the San Diegos is found free-milling gold ore. There have been several recent strikes in Dona Ana County which are very rich in copper.

The Old Abe mine, near White Oaks, in Lincoln County, is one of the heaviest gold producers of the Southwest. Workings in this district have reached a depth in some mines of 800 and 1,000 feet, and at that depth ore bodies are more permanent than nearer the surface, showing that nothing is lost by deep working. The Bonito country has extensive low-grade free-milling gold ores, but has been little prospected. In fact, this entire section is almost a virgin field for the prospector. The Jicarilla placer fields are well known to the miner looking for a grub stake. The completion of the El Paso and Northeastern into this rich section will go far toward assuring its future.

In the new county of Otero can be found minerals which will bring it prominently to the attention of the mining world. Besides the new placer discoveries in the Jarillas, which cover about 40 miles of gulches, a new find of ore, believed by the lucky discoverers to be tin, is the latest, and as there are large bodies of it, if their surmise proves to be correct, it will become one of the centers of mining excitement in the Territory.

The chain of mineral deposits running through Colorado are practically the same as found throughout the entire extent of New Mexico, superficial conditions and geological formations in this Territory being almost identical with those found in Cripple Creek and other rich Colorado camps. Following the mountain range from the northern boundary through Colfax and Taos counties to the southeast through Santa Fe to Lincoln, and to the southwest through Bernalillo, Socorro, Sierra, and Grant counties, the same general indications are met, the outcroppings being conspicuous and almost continuous. Many mines in this range have been good producers for years and new and valuable finds are of almost daily occurrence. At the present time development is being carried on more vigorously than in the history of the Territory. When the prospector and investor considers that this mineralized region extends through New Mexico a distance of over 400 miles and strikes almost every county in the Territory, he can readily see that it is the most attractive field in the West. Climatic conditions which make it possible to work the year round are also an advantage not to be overlooked.

Pine, fir, and spruce cover the mountain ranges below timber line, thus furnishing a plentiful supply of timber for mining purposes.

In the matter of fuel the coal fields of New Mexico are extensive, and, as they are widely distributed, their product is easily and cheaply furnished to every district in the Territory. Labor is another feature which must not be overlooked, as it is especially cheap.

Among the natural resources of the Territory are gold, silver, lead, zinc, copper, brown and red hematite, ricolite, mica, coal, limestone, sandstone, fire clay, hydraulic cement, infusorial earth, silicified wood, turquoise, garnet, opal, natural gas, petroleum, mineral waters, mineral paint, alum rock, basalt, and the latest discovery—tin.

MINING AND MINERAL RESOURCES.

The mining resources of New Mexico are in reality wonderful. Here we have practically everything in the shape of mineral too numerous to mention, but running from salt and sulphur up to gold and silver and precious stones. And while there are numerous paying mines, none of them are what may be said to be well developed so far. All that it needs is the influx of more capital to thoroughly develop its various mines, when this Territory will become one of the richest mineral-producing regions of the Rocky Mountain Range.

The mineral resources of our Territory have been slowly but surely forcing the attention of capitalists, and the outlook for the coming year is very encouraging and brighter than it has ever been. It has been a hard matter to interest men of means in our mines, but gradually this indifference is wearing off and capitalists are now sending experts to examine into the many promising propositions throughout the Territory, and we hope for good results from the interest taken by our Eastern friends, as New Mexico offers as fine opportunities in the mining line as any portion of the globe. This interesting of capitalists means that money for development, for mining machinery, for smelters, mills, and other reduction plants will find its way to New Mexico and make the mining camps of New Mexico large producers.

GOLD OUTPUT WILL BE ENORMOUS FROM MANY DISTRICTS—EASTERN CAPITAL IS BEGINNING TO DISCOVER THE OPPORTUNITY—NOT ONLY GOLD, BUT OTHER METALS AND PRECIOUS STONES ARE FOUND THERE.

Mining matters in New Mexico can only be spoken of as surprising in every respect, and everywhere from along the line of that industry reports are continually coming in of new strikes being made, old mines being worked to their fullest capacity, and new corporations being formed for the purpose of exploration and practical working. It is being demonstrated every day, and in all of the principal districts, that there is gold and plenty of it. What is needed now is capital with which to work mines that have been proved more than good paying propositions. In many districts the experimental period is positively passed, and practical work with capital is being done. Capital is pouring in from the East, and the gold mines of New Mexico are proving vastly more productive of profits than the manufactories of Massachusetts, Ohio, and Illinois, and Eastern men are beginning to realize that such is a fact.

THE MOGOLLON DISTRICT.

Down in the southern or Mogollon district the activity is very great, and increased capacity is steadily marked. The Confidence is turning out from 80 to 100 tons of ore every day with a force of 70 miners. The ore is of good quality, and the proprietors are enjoying a well-deserved period of profits.

The Deadwood mine, in the same district, is now run in connection with the Deep Down mill, which is using daily considerable ore which averages $16 in gold and $21 in silver. There are immense bodies of this ore in sight and very easily gotten out. Numbers of smaller mines in the same district are being worked, and prospectors are actively looking up that region, and with considerable success. The Philadelphia men who are interested in that section are reported as pushing the formation of their big company, and it is expected their operations will be commenced in the near future, giving numbers of men in that region employment.

THE HILLSBORO OUTPUT.

And at Hillsboro, in practically the same district, the output from the mines last week amounted to 180 tons. This is a section which could be advantageously prospected. Other regions in the Territory have become so well known to mining men that their attention has been diverted to a great extent away from the promising Hillsboro country, although it has been demonstrated there is plenty of gold and other mineral in that region only awaiting development.

In the Ortiz mine grant things are looking lively. The men who have control of the Edison interest there do not say much, but it is generally known that the machinery for the intended gigantic operations on that grant by the Edison Company is being gotten ready in the East as fast as possible, and that before very long a large number of men will be finding employment in producing the yellow stuff from that immense deposit of ore.

THE COCHITI DISTRICT.

In the Cochiti district and around Bland and Albemarle things are particularly promising. Bland seems to be a trifle more favored so far as new people and prospectors are concerned, it being reported that new arrivals to that camp have averaged 10 per day for some time back. As few of the new prospectors seem to have any thought of leaving, it must be taken as conclusive evidence that the camp is in a sound, healthy condition. Most of the new arrivals are those directly concerned in mining, and as there is a large unexplored and unclaimed body of land in that vicinity yet, the prospects seem to be alluring for the prospector. Newly opened claims are very easily disposed of, but the owners seem to be inclined to hold on, knowing that time will increase the value of their properties. The Cochiti is undoubtedly the best-paying region in the Territory.

NOT A BOOM MOVEMENT.

The unusual developments, both under way and projected, are not the result of a boom; they are but the honest, gigantic stride forward of a surpassingly rich country, whose resources are beginning to be known. The latest big project is the substitution of electricity for steam as the motive power in that district. With a big dam constructed across the Rio Grande about 12 miles above the Albemarle group of mines, and an electric-power house at that point large and powerful enough to furnish power to not only the mills, but for the tramways and lighting purposes, it is plain to be seen that the Cochiti will be prosperous. The scheme is a bona fide proposition and will be carried out by Eastern capitalists at no very far distant day.

On the Albemarle group everything is humming. The pay roll of this mine already averages $16,000 per month, and that property bids fair to make a national reputation as a producer of gold. While gold commands the most attention, the silver propositions are all right, and should the price of the white metal continue to advance, prodigious production of that metal in central New Mexico would be chronicled. Opals are frequently found in this part also. In Santa Fe and more particularly Taos County, deposits of copper are being exploited with good results, and the Copper Glance mine in Taos County has been bonded to Chicago capitalists.

THE RED RIVER COUNTRY.

Up in the Elizabethtown and Red River country everything betokens a very busy summer, and, like the other mining districts of the Territory, seems to be very sanguine of pronounced and abundant success.

Every able-bodied man in that region is able to instantly command work. At the Mallette property very fine free gold specimens have been shown up, with the full expectation that the good prospects will continue. The "I Own" is undergoing considerable development. H. B. Tompkins's property on the Black Mountain, in the same vicinity, is panning out well, his shaft at 35 feet showing up a 4-foot vein of excellent ore. One of the promising claims is that of Henry Young, who has been actively at work taking out ore that assayed $500 per ton. The Anderson property at Elizabethtown is authoritatively reported as sending $100 ore to the mills. In the northern region, and, in fact, in the several mining districts of the Territory, the mining outlook for the coming season is particularly enticing, and there is no doubt but the present success will prove a great benefit as a sound advertising medium for the undoubtedly great and rich mining resources within our borders.

THE MINES OF NEW MEXICO.

[From Territorial Bureau of Immigration.]

GOLD, SILVER, COPPER, LEAD, IRON, COAL, AND ALL THE PRECIOUS AND USEFUL METALS AND MINERALS—FIELDS FOR THE PROSPECTOR AND INVESTOR IN EVERY COUNTY OF THE TERRITORY—A CLIMATE THAT AFFORDS AN OPPORTUNITY FOR THE MINER TO WORK THE YEAR 'ROUND—THE ATTENTION OF MINING MEN FROM THE NORTHERN STATES NOW BEING ATTRACTED TO THIS TERRITORY, RICH IN MINERALS, AND LARGE-SIZED INVESTMENTS ARE BEING MADE.

A vast mineral field.—Mr. J. D. Bone, a mining expert of good standing, who has a practical knowledge of the different mineral districts in the Territory, says:

"As a broad assertion, we may say the whole mountain region in New Mexico is a fair and a reasonably sure prospecting field. It is a very false idea to suppose that a few favored spots, at which development has taken place—merely little pin points on the vast area of known mineralized territory—are all, or one-thousandth part, of the great resources of our mountains.

"We do not hesitate to say that quite a promising field for prospecting would be right in the midst of any one of our oldest camps. This being true in the oldest and livest mining camps of the Territory, surely the vast fields of known mineral-bearing area have been but indifferently prospected, if indeed, at all.

"The seeker after hidden wealth has here in New Mexico a wide field, one which it is not at all improbable will exceed in value anything yet discovered. The areas most likely to produce results are where eruptive forces have been most active and the disturbances and crystallizing of the strata most pronounced.

"In this Territory, with its 122,444 square miles, are rich and inviting fields, practically untouched by the pick of the prospector, and offering the miner and capitalist opportunities for rich returns for labor and money expended, such as are very seldom found in any mining section of the great West. As good, if not better, chances are presented within the boundaries of this Territory than were found in Leadville or Cripple Creek, Colo.

"*Mining districts.*—This Territory has now some eighty-five mining districts, which are scattered widely, and cover a large section of country, thus showing that the mineral wealth is by no means confined in any one special place, but largely distributed over a great extent of territory.

"The territory in New Mexico already more or less developed equals 30,000 square miles of mineral-bearing country, and the better developed districts of this vast extent are as rich as any exploited elsewhere in the United States, and its as yet great 'undeveloped areas' offer to the intelligent prospector and energetic man of means opportunities found in no other mining country.

"*The great mineral belt.*—By examining any ordinary map of the Western States it will be seen that all of the most valuable recent developments of minerals in southern Colorado are on a well-defined line following the Rocky Mountain system into and across New Mexico, and that that line extends through the central west and southwest portions of the Territory without a break of any considerable extent.

"That conditions along this extent of country, almost 400 miles in length, in many respects resembling the gold and silver bearing formations of Creede, Cripple Creek, Rosita, Silver Cliff, and the great San Juan country of Colorado can not be doubted, and in the coming years it is not unlikely this section of New Mexico may develop many places as productive of wealth as the above-named Colorado districts.

"*New Mexico gold fields.*—Lying just south of the great Commonwealth of Colorado, our first counties are San Juan, Rio Arriba, Taos, Colfax, and Union.

"The evidences of gold throughout San Juan are such that this county becomes attractive as a point where extensive hydraulic operations may be conducted with every assurance of success.

Alfalfa on Alameda Ranch, Rio Grande Valley.

"Passing east from this county we come to Rio Arriba, where the mineral deposits, worked to any great extent, generally take the form of placers and vast fields of coal. It would seem to us that in the vicinity of Tierra Amarilla and Good Hope would be a good and most promising prospecting field for the precious metals.

"*Rich placers.*—Near Abiquiu, along the Chama River, are gold placers that cover nearly 20,000 acres, which show a remarkable average yield of gold, and as water seems to be plentiful for most of the year, this vicinity is unexcelled as a point where large and paying mining enterprises may be conducted.

"The deep placer deposits of Taos County, along the Rio Grande, are probably the most extensive in the United States, and investigation warrants us in saying that nothing since the discovery of California and Australia is comparable for its measurable resources of gold available by the hydraulic process. Reference to the report of Prof. Benjamin Silliman, of Yale College, to the Commissioner of the General Land Office, published in 1880, will fully convince even those who are sending men and money to explore Alaska's frozen fields that right here in New Mexico—a land of perpetual sunshine—are equally rich and much more desirable gold-placer deposits. The altitude of these deep placer deposits is perhaps 7,000 feet; still, because of this locality being sheltered by the encircling mountains, and because of its more southern latitude, placer mining can be carried on quite nine months of each year and at points the entire year. These great placer deposits do not alone constitute Taos County's great undeveloped resources, for her mountains are rich in metals, as is fully shown at numerous points where there are producing gold, silver, and copper mines.

"*Quartz mining.*—The Red River country in Taos County is fast becoming known to mining men throughout the world as a district destined in a very short time to rival any one of our greatest gold-producing sections.

"At La Belle, Amizett, and other points development is being rapidly pushed, and it may be said that Taos County has fairly entered upon a bright mining future.

"To the east of this rich county of Taos lies Colfax County, a district which has produced many millions in gold, and which to-day gives brighter promise than at any time in its history. A very large proportion of the rich mineral lands of this county are comprised within the boundaries of the Maxwell Land Grant Company's property. The liberal policy pursued by this company in its dealings with the prospector is worthy of notice. The management of this grant has laid down rules very similar to those governing mineral locations on the public domain, and the property is thrown open to the prospector and miner, who can at a nominal cost acquire title and develop mining properties on the grant. The old Baldy district on this grant is a large gold producer; so also is the Ute Creek district, where is located the famous old Aztec mine, with a record of almost a million in gold. The Montezuma mine, on what is commonly known as Montezuma Hill, has produced between $200,000 and $300,000.

"There is greater activity in the west Moreno Valley district than ever before, and only 3 miles from the new but promising camp of Hematite are the world-famed Elizabethtown placers, which have produced over $200,000 in gold. Aside from these famous placers it is said that miners, in a crude way, produce large sums in gold from placer ground but little known.

"*Grand opening for prospectors.*—Little mining of the precious metals has been done in Union County, but it is not an unlikely field for prospecting for our undeveloped mineral resources.

"Passing from Union County, we next take up Mora and San Miguel counties, two sections of the Territory which seem to have been but indifferently prospected. The mountain range west of the city of Las Vegas lies directly in the gold-producing belt, and surface indications are most favorable.

"South from the city of Santa Fe, Santa Fe County, and not far from the town of Cerrillos, in a disconnected range of mountains, with perhaps an average width of 7 miles, is one of the most remarkable mineral regions of New Mexico, and we may say of the world. This range travels north and south and is known as the Ortiz Mountains. The surface indications are unsurpassed, and a number of fine bodies of low-grade, free-milling gold ores are found, among which may be especially mentioned the famous Cunningham Hill and adjoining properties near Dolores. The main western lode, especially in its southern extension, is rich in copper, as found in the workings of the Santa Fe Copper Company. This region was known to the early Spanish explorers, who, upon their advent into this country, discovered and worked the rich gravel deposits at the base of Ortiz Mountain, in and about San Pedro, Golden, and Dolores.

"*A million a year.*—An experienced and reliable expert who examined these extensive placers a few years ago reported that, 'if sufficient water were placed thereon, these placers could be made to yield $1,000,000 in gold per year for over twenty-three years.' The 'country rock,' being soft and porous, so that the vein matter lying near the surface rapidly oxidizes and the oxidized 'honeycomb' quartz remaining with its vast supply of free gold, is eroded by degrees and being carried down the slope to feed the placers below.

"*The famous turquoise mine.*—In the vicinity of Cerrillos is a small section of mountainous country, in which is located one of the world's best-known and most productive turquoise mines. There are, as near as we can learn, some sixty or seventy turquoise claims in New Mexico, some ten or a dozen in active and profitable operation.

"The output of turquoise in New Mexico, as taken from official sources, was $150,000 in 1891, $175,000 in 1892, $200,000 in 1893, $250,000 in 1894, $350,000 in 1895, and $475,000 in 1896; but it is openly asserted that the true value of turquoise mined since 1890 has been greatly underestimated. As an illustration, one of these mines sold in 1893 for $250,000, and, according to the statements of a former owner, has paid a million and a half a year since that time. One single stone taken out is reported to have been bought for $6,000 in New York.

"*Cochiti and Hell Canyon.*—Leaving Santa Fe County, we next take up Bernalillo, which has an area of 8,000 square miles, of which 5,000 square miles are classed as mineral lands. The well-known Cochiti mining district practically dates from discoveries made in 1893. Progress was retarded by title suits under old grants, but a decision favorable to the miners was recently handed down by the United States Supreme Court, and now development in this wonderful camp goes steadily forward.

"East of the city of Albuquerque some 20 miles is the Hell Canyon district, destined in the near future to attract widespread attention. The large bodies of free-milling ores disclosed in the workings of the mines are probably as extensive for amount and character and work as any in the United States. These large bodies of ores are deserving of investigation, and if operated on proper lines will produce handsome returns for many years to come. Considerable mining machinery is now being placed in the camps, and active operations will soon commence.

"In our travels south we have now come to Socorro, a country blessed with abundant natural resources, extending as it does about 170 miles east and west by 100 miles north and south, and containing over 10,000,000 acres, some sections of which have produced millions in mineral wealth. This county, which for many years past has been steadily adding to the mineral wealth of the world, stands to-day upon the threshold of a brighter future than at any time in its history.

"*A carload of bullion a day.*—Just west of Socorro City there are large deposits of lead-silver ores, but only at one point in the county is this class of ores now being mined to any great extent—in the Magdalena Mountains. Water Canyon and Copper Creek districts, west of Socorro City, are very rapidly coming into prominence as gold producers, and with the improvements now being made bid fair to rival the best-known sections of the Territory. At the town of Kelley, some 30 miles west of the city of Socorro, are located the famous Kelley mines, heavy producers of lead-silver ores. Under the able management of Capt. A. B. Fitch the Graphic mines are producing with ease sufficient ore to keep in full operation day and night the 100-ton smelter. A carload of bullion is turned out by this plant every twenty-four hours, thus making lively times not only for the many miners in and about Kelley, but every man in this section reaps a measure of benefit from this industry.

"Away to the west in Socorro County, near where the Territorial boundary line joins Arizona, is located the Cooney district, a section at one time producing high-grade silver ores, but whose mines are now being worked largely for the gold values contained in the ores.

"*The far-famed Black range.*—We have now reached the county of Sierra, wherein are located the well-known Mimbres, or Black range of mountains, which in many respects are among the most remarkable in the United States. It has been most truly said that an extent of country from San Augustine plains on the north to Cooks Peak on the south, a distance of over 120 miles, is mineralized in a greater or less degree throughout. Mines located along this mineralized belt of country have long been famed as steady producers of high-class ores of all the useful metals, including gold, silver, copper, lead, and iron. The Black range extends in a northerly and southerly direction, and is about 40 miles in width. The apex or summit of the range forms what is known as the Continental Divide. The topography of the country is such as to make any point easily accessible."

A yet undeveloped field.—A large percentage of the known mineral-bearing area of New Mexico has been but indifferently prospected—very much of it not at all. Consequently there is still here a wide field for the seeker after hidden wealth. It is therefore not impossible, or even improbable, that there are yet here quite as profitable fields untouched by the pick of the prospector as any that have been developed. There is good reason to believe that the southwesterly portions, nearly all mountainous, bordering Arizona and old Mexico, abound in all the valuable minerals equally if not beyond the northeasterly portions of the mountain areas, and that in due time, under the rigorous search of the energetic and intelligent prospector, great values will in the not distant future be developed, and to an extent and value equal, if not beyond, any that have yet been reached.

The capitalist, the miner, or prospector who decides to cast his lot here will find the foundations of a broad and enlightened society well established. They will find a generous, progressive, and liberal-minded people, ready to lend a helping hand to every comer. They will find order, society, law, and an enlightened public sentiment ruling the Territory.

"Not only the character of these deposits as given by conservative and reliable correspondents, but the accessibility and value, as shown by the daily record of output and the vast extent of the field covered, mark this as the most attractive field to the miner and mine hunter yet developed on the American continent, if not in the world.

Favorable climatic conditions.—The annual report of the New Mexico section of the United States Weather Bureau for 1897, published in Bulletin No. 1, 1898, contains valuable information in regard to the climatic conditions in New Mexico, especially to prospectors and miners, while it shows, as compared to more northerly latitudes, that the mean temperature of the mining sections of New Mexico was seldom below the freezing point and the weather was very rarely too cold for prospecting or surface-mining work. If so disposed, the miner can put in the entire year prospecting or mining, at his pleasure or convenience.

Mining claims, how located.—The bureau frequently receives inquiries asking for information concerning the manner of locating mineral claims in New Mexico and if our laws differ from the regulations prescribed by the United States General Land Office.

We can say that, in the main, the United States laws, as found in the Revised Statutes, governing the location of claims, govern also in New Mexico, the laws of New Mexico making one additional requirement relating to the locating of mines, which is set out in section 1 of chapter 25, Laws of 1889, as follows:

"That the locator or locators of any mining claim located after this act shall take effect shall, within ninety days from the date of taking possession of the same, sink a discovery shaft upon such claim to a depth of at least 10 feet from the lowest part of the rim of such shaft at the surface exposing mineral in place, or shall drive a tunnel, adit, or open cut upon such claim to at least 10 feet below the surface exposing mineral in place.

The United States laws prescribe that mining claims upon veins or lodes of quartz or other rock in place, bearing gold, silver, cinnabar, lead, tin, copper, or other valuable deposits, shall not exceed 1,500 feet in length along the vein or lode; and the claim is limited to 300 feet on each side of the vein or lode. (See sec. 2320, Rev. Stat.)

Tunnels.—Where a tunnel is run for the development of a vein or lode, or for the discovery of mines, the owners of such tunnel shall have the right of possession of all veins or lodes within 3,000 feet from the face of such tunnel on the line thereof to the same extent as discovered from the surface; and locations on the line of such tunnel of veins or lodes not appearing on the surface, made by other parties after the commencement of the tunnel, and while the same is being prosecuted with reasonable diligence, shall be invalid. Failure to prosecute the work on the tunnel for six months shall be considered an abandonment. (See sec. 2323, Rev. Stat.)

A Klondike at home.—The "Klondike of the Southwest" is the name frequently applied to New Mexico, and, judging from the flattering progress she has made in mining since January 1, 1898, before the end of the year the fever for the gold in the "Klondike of the Southwest" will be as high and unabating as it now is for the "Klondike of the Northwest," and in contrast and comparison producing gold against gold, railroad facilities against reindeers and dogs, food against famine, comfort and health against hardships, and happiness against misery.

Our vast natural resources.—It is no exaggeration to affirm that in point of natural resources none of the Rocky Mountain States exceed New Mexico. In addition to gold, silver, copper, lead, and zinc, coal (anthracite and bituminous), fire clay, alum, sulphur, salt, gypsum, onyx, and marble are found in large deposits. New Mexico supplies the world with turquoise.

GYPSUM.

In south Santa Fe County, in the county of San Miguel, and in several other places in New Mexico are to be found large deposits of this mineral. In Doña Ana County, on the San Augustin Plains, there exists the largest deposit of gypsum known in the world, of an exceedingly pure character. The location of this deposit is unique. The San Augustin Plain is about 150 miles in length from north to south and from 30 to 60 miles from east to west. Near White Oaks, in Lincoln County, in the midst of this plain, is the crater of an ancient volcano, the lava from which has flown in a southerly direction like a stream of water for a distance of 60 or 70 miles, varying in width from one-half to 3 miles. At the southern end of this stream of lava there is a small stream of salt water flowing into a salt lake, about 1 mile in width and 1½ miles in length. At the southern end of this lake the bed of gypsum begins and extends in a southerly direction down the center of the plain, adjoining what appears to be an ancient river bed, almost without a break for a distance of 50 miles. The gypsum bed varies from 5 to 20 miles in width. It is granulated in character, white as the driven snow, and seems to be piled up on the plain like snow-drifts, requiring no labor for mining or for handling. I can not more accurately describe its appearance than by comparing it to granulated sugar. If you should take granulated sugar in one hand and the gypsum in the other it would be difficult to tell one from the other by sight or touch. The body of the gypsum stands from 10 to 40 feet above the surrounding plain, and the line is as distinctly marked as the sand upon the ocean beach.

CARBONATE AND SULPHATE OF SODA.

Immediately adjoining this extensive deposit of gypsum upon the west, and in what is apparently the bed of an ancient river or lake, exists a deposit of carbonate and sulphate of soda, carrying about 15 per cent of carbonate of soda, 20 per cent of sulphate of soda, 4 per cent of borax, the remainder being mostly moisture and sulphate of lime. This deposit is about 1 mile wide and 5 miles in length. Its depth is unknown. At from 2 to 4 feet below the surface water is encountered, which is largely impregnated with these minerals and with chloride of sodium. Explorations have been made in several places throughout the deposits, by driving down tubes to a depth of from 20 to 30 feet, without discovering any change in the character of the deposit.

There is also a considerable deposit of carbonate of soda near Manzano, in the county of Valencia, and near Wagon Mound, in the county of Mora.

KAOLIN AND FIRE CLAYS.

These valuable minerals have been found in considerable quantities in several places in the Territory. The most notable deposit of fire clay worked to any considerable extent is situated near Socorro, in Socorro County. There has been a recent discovery of a large deposit of kaolin and fire clays in the suburbs of Santa Fe of superior quality. Efforts are now being made to utilize these clays at the

Territorial prison. In the immediate vicinity there is also found a considerable bed of graphite, and it is hoped that in the near future it will be extensively worked.

ALUM.

A large deposit of alum has been opened on the Gila River. It is reported to be of great commercial value, and is now being worked to some extent. With proper railroad facilities these alum beds and the beds of gypsum and soda heretofore referred to would become the most productive properties in the Territory.

PRECIOUS STONES.

In describing the mineral resources of New Mexico the native precious stones are worthy of mention, as they are steadily rising in popular estimation and production.

Traditionally this Territory has been noted as having produced some remarkable gems, and recent developments are proving the older records to have been correct. It is only recently that scientific research and skilled labor have been directed to this purpose. The result is a steady increase of expert prospecting and labor in development, which, though only fairly begun, has resulted in finding many varieties of precious and semiprecious stones.

The estimated production and value of gems up to the year 1890 can be found in the census reports of that year. It is worthy of remark that the amount and the value thereof are understated, the facilities for correct and full information being limited.

Since that time the annual product has more than doubled, and is still increasing. Diligent prospecting has revealed new deposits, and the industry bids fair at present to become a large item in the economic resources of the Territory.

The gems found in New Mexico, in the order of their value, are emeralds, there being one now cut in Santa Fe which weighs 1 karat and is of fine quality. Many other smaller ones have been found, although no expert search has been made for them thus far. A very recent find, next in value, is a gem resembling the ruby in respect of color, brilliancy, and hardness. Of these, quantities are found frequently associated with peridots and garnets, but differing from the latter in being harder and of a different specific gravity and form of crystallization. The range of color is from a light rose or pink to that of a bright red garnet. Though no very large ones have been found, yet gems cut from those found have sold at $20 to $50 each, while their numbers and merits have made them a decided acquisition to the list of precious stones of New Mexico, which must, when more widely known, create for them a large demand.

The turquoise deposits of the Territory are too well known to require an extended description. It is only necessary to state that while some of these gems have been famed in Europe for centuries, yet in the United States they have never met the appreciation their merits and rank as gems deserve until the last few years. Now they are in great demand, having been pronounced by experts equal, if not superior, to the Persian turquoise. There are single gems from Santa Fe County, now in New York, held as high as $4,000, and some in Santa Fe of nearly equal size and quality.

This sudden appreciation has given a stimulus to further research, resulting in finding large turquoise deposits near Silver City, in the Hatchitas and Cow Spring mountains, of great merit. One of the new discoveries is phenomenally large, considering quantity of production, size and color of stones found in it.

In addition to the above named are found native euclase, the so-called Montana sapphires, garnets, milk and fire opals, peridots, a great variety of fine agates, besides petrified woods, fit for inlaying, mosaic work, or jewelry. Gold and silver quartz, valuable for fine work in jewelry, are produced from various mines.

COAL.

Chief among them is that of coal, of which there are large beds of bituminous situated in nearly every county in the Territory, and an extensive body of anthracite coal near Cerrillos, in southern Santa Fe County.

WEALTH IN SULPHUR.

BEDS CLOSE TO A PECOS VALLEY STATION.

The following article on the sulphur beds lying just west of Guadalupe, on the Pecos Valley road, is taken from the El Paso Herald. A number of Eddy parties are interested in the deposits, having been engaged for some time in investigating them. During the past two months E. Miall Skeats, of this city, has spent considerable time there, and The Argus believes that he is very sanguine of the results. The article from the Herald is as follows:

"One of the greatest sources of the as yet undeveloped mineral wealth of El Paso County lies in the extreme northeastern portion of the county, and is in the form of almost limitless deposits of nearly pure sulphur, easily accessible, and requiring but little capital (chiefly for refining works) to place it on the market as a finished product. These deposits fill numerous patelliform basins or craters of extinct volcanoes on the plains southeast of the southern point of the Guadalupe Mountains, beginning 2 to 3 miles south of Delaware Creek and 12 miles west of Guadalupe Station, on the Pecos Valley Railroad. So far they are known to exist on some twelve or fourteen sections of land, and are believed to extend over many more, though but twelve claims have been located, and these but superficially prospected by shafts usually from 12 to 15 feet in depth, only one being as deep as 30 feet, and all these in nearly pure sulphur to the greatest depth attained. The region roundabout might be called a prairie, though dotted here and there with low hills overgrown with scrub cedar and covered with the finest grasses. Numerous springs of pure water exist in the vicinity, and Tinnin's great spring ranch lies 6 miles south.

"These basins or craters are usually from 600 to 700 feet in diameter, and toward the center it declines to a depth of 3 or 4 feet, the surface being a thin covering of blackened earth, strongly impregnated with sulphur, and presenting the appearance of having been blackened with sulphuric acid. In one shaft, sunk in the hope of striking water, a liquid was encountered at a depth of 15 feet, but on being tasted it proved to be very strong sulphuric acid, and when the taster hurriedly ejected it from his mouth, adulterated with saliva as it was, it stained deeply and did some injury to his coat sleeve. It is believed, however, that this acid is small in quantity, detained by some solid rock basin, and that it was formed by percolating rain water taking sulphur in solution as it descended.

"As indicating the process by which these vast masses of sulphur were deposited, time has left no trace. As the country roundabout is gypsum, it might be inferred that both minerals were deposited from sulphur springs, or springs containing sulphide of hydrogen, which sometimes deposits sulphur by the partial oxidation of the hydrogen and gypsum by the more complete oxidation of the hydrogen. Such springs flowing into a basin lake then covering the region would pour limitless quantities of sulphide of hydrogen (only partially oxidized) down the craters of extinct volcanoes, thus ultimately filling them with sulphur to unknown and probably very great depths, while the impregnated water spread out in the shallow lakes would become more completely oxidized and deposit the gypsum beds now found surrounding the craters. Or, as the craters of extinct volcanoes (as in the case of Popocatapetl) are frequently found plugged with sulphur, it may be that this mineral, in a sublimated state, arose from great depth and was precipitated on the lips and walls of the crater until the orifice was filled. But, whatever the process of deposition may have been, it is certain that these deposits of sulphur are of such vast extent and purity that El Paso is destined to rival the famous sulphur deposits of Sicily, from which island the United States alone formerly imported $50,000,000 worth of sulphur annually.

"Near the surface of the basins in question, where more or less earthy matter has become mixed with the mineral, and even pebbles of foreign rock are embedded, the mass shows only about 60 per cent sulphur, but deeper down the sulphur is found almost pure (98 per cent) and in massive beds, finely lined with varying colors and resembling the finest yellow clay. Twelve different companies have already treated and partially prospected claims, and one of these companies has projected a railroad from Guadalupe Station, on the Pecos Valley Railroad, to the mines, there being already a fine wagon road to the south, extending 30 miles west from the Pecos Valley road. As these deposits are numerous, doubtless of great extent or depth, and are known to be exceedingly rich, the field is an inviting one for prospectors and small capitalists. The material can be mined and refined at little cost, and can be marketed at wholesale at $32 per ton for roll and $33 to $35 per ton for flour."

SANTA FE THE NATURAL CENTER OF MINING OPERATIONS IN NEW MEXICO.

[From Santa Fe Daily New Mexican.]

The New Mexican has the satisfaction of exclusively publishing the first map showing the numerous mining districts naturally tributary to Santa Fe, N. Mex., ever placed before the public. It was drawn and engraved expressly for use in these columns, and will be found accurate, complete, and instructive. It is deserving of careful study on the part of everyone interested in the future growth and prosperity of the capital city and the localities immediately environing it. Especial attention is called to it in detail.

MANY FACILITIES.

It will be observed in the first place that Santa Fe is the only city in this region that enjoys the advantages inevitably accruing from location on two competing railroad lines, the great Santa Fe system affording it direct rail communication with the East, West, and South, and the Denver and Rio Grande Railroad connecting it directly with northern New Mexico and Colorado and all points in the East, West, and South, and thus in one important respect at least its transportation facilities are superior to those of any other city in New Mexico or Arizona. Right here it should be noted that it is located on two rival express lines reaching all parts of the country; offers a choice between two competing telegraph lines with all quarters of the globe, and is soon to be brought into close communication with all the principal cities and towns of Bernalillo, San Miguel, Mora, Colfax, Taos, and Rio Arriba counties by means of projected telephone lines. It is also connected with all the tributary mining districts by an excellent system of wagon roads.

NEW PLACERS DISTRICT.

A few miles southwest of Dolores is situated the extensive New Placers mining district, which comprises the numerous rich gold and silver-bearing lode claims in the hills around Golden and in the neighboring Tuerto Mountains; the great gold, silver, and copper mines around San Pedro, 2 miles farther south, and several miles of pay placer ground. This district unquestionably holds values to the amount of millions of dollars, and as development work is prosecuted the showing constantly improves. Two groups of copper mines near San Pedro, known as Santa Fe No. 1 and Santa Fe No. 2, embracing 16 patented claims, were recently transferred to the Santa Fe Gold and Copper Mining Company for a consideration estimated to be equivalent to $750,000.

COPPER AND MICA.

Northwest and north of Santa Fe, in Rio Arriba County, are deposits where large kidneys of almost pure copper have been found on the surface and big bodies of good copper ore are known to exist, the promising Headstone mining district east of Tierra Amarilla, the valuable mica mines west and south of Tres Piedras, now being operated by a strong Colorado Springs company, and over 1,000 acres of pay placer lands extending up the Chama River from Abiquiu and including much of the adjacent mesa land as well as the river bed.

TAOS COUNTY WEALTH.

East of Rio Arriba and north and northeast of Santa Fe is fruitful Taos County, which is traversed by the Santa Fe division of the Denver and Rio Grande Railroad, and is reached from this city by good wagon roads. In this resourceful county are found the Ojo Caliente mining district, the copper-mining district east of Embudo, the Amizett gold and silver mining district east of Tres Piedras, and the cluster of rich gold districts north and northeast of Taos, known as the Rio Hondo, Keystone, La Belle, and Red River districts. Farther east, in Colfax County, are the profitable gold mines of the well-known Elizabethtown and Baldy districts, and the mines near Cimarron. The mines in all these districts are undergoing systematic and extensive development work, and many of them are realizing their owners steady yellow profits at the mills and smelters.

A NEW DISTRICT.

Immediately east and northeast of Santa Fe is the Pecos River forest reservation, partly in this county and partly in San Miguel County. This reserve covers a section of the rugged Santa Fe range of mountains, in which are found many promising surface indications of gold, silver, copper, iron, and coal, and it is confidently believed that the development work now in progress will soon disclose much pay material. Copper, iron, mica, and coal that burns readily have been discovered on the surface within 2 or 3 miles of this city. A large body of fire clay of superior quality has been opened about 2 miles northeast of Santa Fe, and it is now supplying the penitentiary brick-making plant with much of the clay used. Several lode claims, carrying gold quartz nearly resembling the Cochiti quartz in appearance, are being opened on the eastern slope of the Santa Fe range, about 14 miles east of this city.

THE NATURAL CENTER.

From this brief sketch and the excellent accompanying map, it will be perceived that the capital city of New Mexico is so fortunately located that it ought to command the trade of nearly all the mining districts of the large and resourceful region indicated, besides the steadily increasing volume of business incident to its being the official and political center of the Territory.

CERRILLOS DISTRICT.

It will be observed that the Cerrillos mining district is located in Santa Fe County, nearly south of this city, and is reached by railroad as well as by good wagon roads. It is quite extensive and remarkably varied in its mineral resources. It embraces the famous turquoise mines of Tiffany and others at Turquesa, about 18 miles south of this city; the promising gold, silver, lead, and zinc mines around Cerrillos, about 12 miles farther south, and the immense anthracite and bituminous coal measures at Madrid, a mile or so farther south and west.

OLD PLACER DISTRICT.

Then come the rich and extensive auriferous placer deposits and mountains of gold-bearing quartz in place in the Old Placer mining district, which embraces Dolores and the 57,000 acres of richly mineralized land known as the Ortiz mine grant. These ledges and placer deposits have been worked for several hundred years and have yielded several million dollars in gold. The Ortiz mine grant has been sold to a powerful syndicate headed by Thomas A. Edison, and the world-renowned inventor expects soon to demonstrate the practical utility of what he regards as the crowning invention of his life by rescuing the gold from the sand, gravel, cement, and quartz of this grant by means of an electrical process of his own and without the aid of water. The perfection of his experimental plant is now well under way. After thoroughly testing the appliance, the success of which is not doubted, reduction works of mammoth proportions will be constructed.

COCHITI DISTRICT.

W. C. Wynkoop, manager of the Cochiti Reduction and Improvement Company at Woodbury, 6 miles below Bland, has a very interesting illustrated article in the Engineering and Mining Journal of recent date on the Cochiti mining district, which is of importance and of great interest because it is written by a mine expert who is thoroughly familiar with the district and its resources. Mr. Wynkoop says:

> The Cochiti district, New Mexico, is a comparatively new mining district, situated in a direct line 35 miles due west from Santa Fe in the Jemez range of mountains. The mines are located on the eastern slope at an elevation ranging from 7,500 to 8,000 feet. The known good ore-bearing veins are confined to an area about 3 by 4 miles in extent, though veins, which so far as known, are barren of good ore, are found on every side outside of the small producing area. Three parallel canyons about 1½ miles apart, having a general range slightly west of north, extend through the district. They are from 500 to 800 feet in depth and are bounded by vertical cliffs or precipitous sides. The topography gives good opportunities to study the geology of the region. All the country is volcanic, and the prevailing rock is porphyritic andesite. In few places is it undisturbed; generally it is brecciated or a conglomerate. Nowhere in the region are the underlying rocks visible; local authorities say the overflow took place at about the close of Jura-Trias; Bandolier says the underlying rocks are Cretaceous, but I am inclined to think, without any other basis for the opinion than their correspondence with the similar and near-by rocks of the San Juan region in Colorado, that they are Tertiary; this, too, is the age ascribed to them by the ethnologists, who are just now deep in a discussion trying to demonstrate that man lived on earth during the Tertiary age, basing their claims on evidence of human work found in volcanic rock in this region.

There are at least two volcanic overflows here, the older one is the andesitic, and it is in this only that the veins are found; the younger one, covering the andesite, is tufa, and is very modern. It is in this that evidences of human life are claimed to have been found. The ethnologists, I think, have made an error by ascribing this later rock to the wrong age. Among other evidences of the late deposition of the tufa is the fact that it is found covering old water channels, filled with water-worn bowlders and ore float, clearly derived from the disintegration of the andesites and their accompanying rocks.

In the upper, or portion of the district nearest the range, the tufa has been mostly eroded, but in the lower portions it still caps some of the mountains, covering the veins which outcrop on the mountain sides below. After the deposition of the andesite the country was faulted and fractured and dikes were formed, and there were considerable changes of elevation, while denudation formed deep sedimentary deposits, which extend easterly to the Rio Grande River, 15 miles distant. The periods of elevation were gradual and extended over long periods of time, until a late one, which was probably contemporaneous with the tufa overflow, which was rapid, as geological time is measured.

The dikes are generally of a soft, gray, acid porphyry, with occasionally one of diorite or trachite. Following the first period of dike formation there was a second one, the dikes of that period following the first and adjoining or cutting them. The second series are smaller than the first, and are composed, so far as I have seen, of basalt or phonolite. Running parallel to and within a few feet of the main dikes are many small veins of white quartz barren of ore. The largest dikes are about 100 feet in width, narrowing in places to a few feet and again widening to more than 100 feet. All of them throw off spurs running at acute angles to the main dike, and extending hundreds or even thousands of feet. The ore is entirely a replacement of the dike material. In some places the replacement has been complete and in others partial. In the latter the replacement may have been all adjoining one wall or in streaks or pockets or bodies anywhere in the vein. Porphyry "horses" are found in all the workings, and frequently chunks of quartz will be found to have a core of porphyry around which the ore is deposited in streaks, forming handsome samples of banded structure.

The quartz deposits are peculiarly characterized by fracture planes (having no better name for them) parallel and from a few inches to a couple of feet apart, which run almost at right angles to the strike of the veins. Sometimes these planes form very distinct boundaries to the ore. Rich or pay ore will be cut off by them, the rock adjoining being barren; at the next, or some other plane, the ore may reappear as suddenly as it disappeared. These barren spots sometimes extend for a distance of 100 feet or more. Practically all of the ore of the district carries from 85 to 95 per cent silica. Siliceous rocks characterize the entire region. Opals (mostly wood, but occasionally a precious one), chalcedony, and brilliant but small quartz crystals are abundant.

Analysis of the ore shows it to be an arsenical pyrite, though the amount of sulphur and arsenic present is very small, generally 1 to 2 per cent of the former and from a trace to 0.5 per cent of the latter. Copper and lead are found only in traces. Manganese is occasionally plentiful, but does not appear to be a constituent of the good ore. Antimony is more rarely found and is always an accompaniment of high values. The ore of smelting grade, ranging in value from $30 to $50 or more per ton, is generally found in lenticular bodies extending longitudinally from a few to 100 feet or more and vertically the same distances. These pay streaks vary in thickness from a few inches to 10 feet and are often so solid that the ore requires no sorting. Generally the low grades are formed by the dissemination of specks of high grade through an otherwise practically barren quartz. All of the ores carry gold and silver, the relative proportions varying in different properties. On the vein which I have been developing the values are 60 per cent silver (valuing it at 60 cents per ounce) and 40 per cent gold, though it is not unusual to find places where the value is almost entirely gold. In a few properties gold largely predominates. The quartz, as might be expected from its composition, is exceedingly hard and costly to drill, but as a rule it breaks big, and the deposits are so large that it can be mined cheaply, notwithstanding the difficulty in drilling. Its hardness is less of a difficulty in mining than in milling, where in crushing it becomes a great consumer of steel. Most of the veins outcrop prominently, occasionally forming cliffs of quartz from 20 to 50 feet high.

The Albemarle mine, belonging to the Cochiti Gold Mining Company, is the best-developed mine in the camp. It has reached a depth of little less than 700 feet and is opened by seven levels extending and opening the vein for 1,000 feet. The width of the vein above the sixth level varies from 40 to 65 feet. Almost the entire dike material for about 800 feet longitudinally and from the third to the sixth level is replaced with quartz, averaging about 40 feet wide. I am told by the manager at the mine that it will average $7.50 per ton. On the seventh level the vein has narrowed to from 10 to 20 feet between walls, and it is said the ore has increased in richness. The company has a cyanide mill erected at the mine, with a daily capacity of 300 tons. It is constructed entirely of steel and iron, and was erected by the Gillett-Herzog Manufacturing Company, of Minneapolis, Minn. The sizes of the buildings are: Crushing building, 76 by 100 feet; engine and boiler room, 40 by 62 feet; one leaching room, 68 by 112 feet, one 60 by 174 feet, and one 42 by 70 feet. The ore, when dumped into the mill, passes over grizzlies, the fine stuff being crushed in Huntingtons to 50 mesh, and treated in Pelatin-Clerici pans. There are three 6-foot Huntingtons and eight Pelatin-Clerici pans in use. The crushing machinery consists of two Blake 9 by 15 inch rock breakers, four sets of rolls 16 by 36 inches, four sets 12 by 20, furnished by the E. P. Allis Company, of Milwaukee, and two sets 16 by 36 inches, furnished by the F. M. Davis Iron Works, of Denver. The ore is screened to 24 mesh. In the leaching rooms there are 12 round iron tanks, 25 feet diameter, with capacity of 120 tons each; eight rectangular tanks, 25 by 30 feet, with a capacity of 200 tons each; six round wooden tanks, 18 feet in diameter, with a capacity of 70 tons each. The depth of each of the tanks is 6½ feet. The saving is reported to be about 80 per cent of the total values.

The mine is equipped with an electric plant, both mill and hoisting works being operated by electric motors. The dynamos are located at the Madrid coal banks, 31 miles distant. The plant does not work well, giving almost daily trouble; this is the common report. Water power in abundance is found on the Rio Grande River, 11 miles distant in a direct line, but after investigating it Mr. F. W. Hart, the engineer who erected the plant, decided to use steam instead of water to furnish the initial power.

The Lone Star, at Bland, is the next best developed mine in the district. It is opened by adit levels for about 1,000 feet, and to a depth of 800 feet below the highest outcrop. A crosscut tunnel 1,000 feet long has just been completed to the vein. The mine has blocked out approximately 150,000 tons of ore, having an average value of about $8 per ton. This property has shipped about $60,000 worth of ore carrying $40 per ton. The vein varies in width from 50 to 100 feet.

The Washington adjoins the Lone Star on the south. It has been opened by a shaft to a depth of 300 feet, and has some hundreds of feet of levels. It has shipped several carloads of ore containing over $100 per ton and has considerable ore in sight, though not blocked out, which samples from $10 to $20 per ton. The mine belongs to an Albuquerque company and is not worked.

The Crown Point is situate about one-half mile to the north of the Lone Star and is generally believed to be a spur from the great vein. It is opened by a shaft approximating 300 feet, with several hundred feet of levels. The vein varies in width from 3 or 4 to 10 feet. The ore is found in pockets rather than lenses. The values are mostly gold. It has shipped probably $75,000 worth of ore and has considerable in sight which samples from $8 to $20 per ton.

The Iron King, adjoining the Lone Star on the north, is the first discovery in the district. From a great cliff, forming a quarry where the discovery was made. 102 tons of ore were shipped which sampled $14.40 per ton. The mine is developed by some hundreds of feet of adit levels and a shaft 100 feet deep, from which levels are now running.

These are the only developed properties in the district, though there are many prospects having 100 feet or less development. Some of these show ore samples from $8 to $20 per ton. In two of them the values are almost entirely gold, which amalgamates well.

At Bland, the principal town of the district, there is a small mill with 10 stamps, two Pelatin-Clerici pans, and a couple of leaching tanks. It was erected and run as a stamp mill some years ago, with poor results, and has passed through various process changes. It has been lately purchased by the Navajo Mining Company, the owner of the Lone Star, and has been used by it as a test mill to determine the best method of treating the ore. This company announces that it will this year erect a cyanide leaching mill, with a daily capacity of 300 tons, crushing wet with stamps, using the Butters-Mein distributers, following the South African practice. It is claimed that their tests show a saving of 90 per cent.

The Cochiti Reduction and Improvement Company, operating the Iron King, had a mill at Woodbury, 6 miles below Bland, until a few days ago, when it was destroyed by fire. It was a pan amalgamation mill, developed from a process plant erected on the ground in 1894. which proved a failure. It fell to my lot to work out a plan for utilizing it, which I did by a plant that, so far as I know, has not been used elsewhere. Treating the ore by raw amalgamation, I was able to save upward of 70 per cent; treating it after roasting, the saving was considerably better. The plan developed was to crush to 30 mesh in rolls, pulverize in Alsing continuous feed and discharge cylinders to 100 mesh, when it was charged into ordinary 5-foot combination pans. The charge was 2 tons to the pan. Twelve pounds of sodium chloride were added to the charge, steam turned in, and the charge run thick. Caustic soda was added until the reaction was alkaline, when 150 pounds of quicksilver were added. In a few minutes 2 pounds of potassium cyanide were added and an electric current turned on.

A low amperage dynamo was used, iron forming the anode and the quicksilver the cathode. All ores were sampled when crushed through the ordinary pipe sampler, and samples were taken from the settler discharge every fifteen minutes. The water was decanted from the sample and evaporated to dryness, the residues assayed, twelve half-ton samples being taken for assay. The samples after decantation were also assayed, and from other samples the entire water was evaporated without decantation. This was for the purpose of locating the losses, and they were found to be almost entirely in the pulp instead of in solution. The saving varied from 84 to 96 per cent.

The greatest obstacle to the development of the district is scarcity of water for milling purposes. The Cochiti Gold Mining Company's great mill can hardly run to full capacity for more than nine months of the year on account of scarcity of water during the dry season. There is an abundance of water in the Rio Grande, 15 miles distant by road, and a railroad would make it practicable to carry the ore to the river. The Cochiti Reduction and Improvement Company has an abundance of water for a large mill, which it controls by prior appropriation.

Pine and spruce timber are fairly abundant, lumber costing $15 per 1,000, wood $2.50 to $3.50 per cord, according to place of delivery, and mine timbers for square sets 9 cents per running foot. All other supplies are sold at about the same price they bring in favorably located mining camps.

MINING LOCATIONS.

THE LAW OF NEW MEXICO CONCERNING THE LOCATION OF CLAIMS.

This office is constantly in receipt of letters from different parts of the country making inquiry regarding the law of New Mexico upon the location of claims in this Territory, and I take pleasure in giving the following for the information of those who desire it:

Under the law, page 588, Compiled Laws of New Mexico, to locate a mining claim upon a vein or lode or quartz or other rock in a place bearing gold, silver, etc., the person locating said claim must distinctly mark the location on the ground so that its boundaries may be readily traced, and post in some conspicuous place on such location a notice in writing, stating thereon the name or names of the locator or locators, his or their intention to locate the mining claim, giving such description thereof by reference to some natural object or permanent monument as will identify the claim; and also within three months after posting such notice he or they shall cause to be recorded a copy thereof in the office of the recorder of the county in which the notice is posted. Within ninety days from date of location the law says a discovery shaft shall be sunk on said claim to a depth of at least 10 feet from the lowest part of the vein of such shaft at the surface, exposing mineral in place, or shall drive a tunnel, adit, or open cut on such claim to at least 10 feet below the surface, exposing mineral in place. In estimating the worth of labor necessary to be performed to hold a mining claim the value of a day's labor is fixed by law at $4, and eight hours of labor actually performed shall constitute a legal day's work.

And within one hundred and twenty days from the date of locating any claim within this Territory the surface boundaries of such claim

Public Plaza, Santa Fe, N. Mex.

San Juan Vegetable Bouquet.

shall be plainly marked by eight substantial posts or stone monuments, each projecting at least 3 feet above the surface of the ground, to wit, one at each corner of said claim, and one at the center of each end and side line thereof, each of which posts or monuments shall be plainly marked so as to show the name of such claim and the direction thereof from each post or monument.

MINE INSPECTOR FOR THE TERRITORY OF NEW MEXICO.

SILVER CITY, N. MEX., *August 11, 1900.*

SIR: In compliance with section 3 of an act of Congress approved March 3, 1891, entitled "An act for the protection of the lives of miners in the Territories," I herewith beg leave to submit the eighth annual report of this office, covering the fiscal year ended June 30, 1900.

JOHN W. FLEMING,
United States Mine Inspector for the Territory of New Mexico.

Hon. MIGUEL A. OTERO,
Governor of the Territory of New Mexico, Santa Fe, N. Mex.

BERNALILLO COUNTY.

W. A. CLARK COAL MINE.

[W. L. Bretherton, agent.]

This mine is located about 5 miles west of the town of Gallup, Bernalillo County, N. Mex. Owned and operated by W. A. Clark. Kind of coal, lignite; thickness of vein, 5 to 7 feet; total output for fiscal year ending June 30, 1900, 90,050 tons; estimated value of output, $124,269; length of slope, 3,000 feet; value of improvements this year, $17,000; average number of men employed outside, 35; average number of boys employed outside, 3; average number of men employed inside, 190; average number of boys employed inside, 10; where coal is marketed, New Mexico, Arizona, and California; number of days mine worked, 290; number of tons of coal used at mine, 1,900.

This mine also produced 6,250 tons of fire clay, which is of an excellent quality, and is shipped to Jerome, Ariz., where it is used for furnace lining in the copper furnaces at that place.

This mine is situated on a spur connecting with the Santa Fe Pacific Railway, about 4 miles west of Gallup station. Is operated by a slope 3,000 feet in length and has a capacity of 1,000 tons per day. This property consists of 1,280 acres of coal land, which carries several seams of coal, only one seam being worked at present. The workings are dry and free from gas or fire damp. The coal is a soft lignite, good for steam and domestic purposes.

This mine shows an increase in production of 43,064 tons, an increase of 135 men employed, an increase of 20 days more worked, and 1,500 feet increase in length of slope over that of the fiscal year ending June 30, 1899.

This mine is excellently equipped with first-class electrical appliances and with modern mining machinery. On my last visit to the mine it was ventilated by air shafts from the vein of coal to the surface, but a new air shaft has been sunk on the mine and connected with the underground workings and a new fan has been ordered. Just as soon as the fan arrives at the mine it will be erected, as I was informed by the agent on June 19, the date of my last visit to this mine. I was informed that the fan which was ordered would have a capacity of 100,000 cubic feet per minute. When this fan is erected it will greatly improve the ventilation throughout the workings of the mine.

RECORD OF INSPECTION.

September 26, 1899.—On this date I was engaged in inspecting the mine known as the W. A. Clark mine. I measured 6,980 cubic feet of air entering the mine per minute and measured 7,140 cubic feet of air returning per minute. I found the workings of the mine well ventilated and in good condition.

November 9, 1899.—On this date I again inspected the mine known as the W. A. Clark mine. I measured 10,960 cubic feet of air entering the mine per minute and measured 12,310 cubic feet of air returning per minute. I found the workings of the mine well ventilated and found the working places well timbered and in good condition.

January 8, 1900.—On this day I again inspected the mine known as the W. A. Clark mine. I measured 6,600 cubic feet of air entering the mine per minute and measured 6,820 cubic feet of air returning per minute. I then inspected the workings of the mine and found the rooms on the first east entry driven too far in advance of the air and ordered crosscuts driven between the rooms. Otherwise I found the mine in good condition.

March 15, 1900.—On this day I again inspected the mine known as the W. A. Clark mine. I measured 11,880 cubic feet of air entering the mine per minute and measured 12,620 cubic feet of air returning per minute. I then inspected the underground workings of the mine and found some of the rooms driven too far without having crosscuts driven between them. The underground workings of this mine are quite extensive, and I ordered Mr. Bretherton to erect a fan on the mine.

April 17, 1900.—On this day I again inspected the mine known as the W. A. Clark mine. I measured 6,780 cubic feet of air entering the mine per minute and measured 6,900 cubic feet of air returning per minute. I then inspected all of the underground workings of the mine and found the workings well ventilated and in good condition.

May 9, 1900.—On this day, early in the morning, it was rumored in the town of Gallup that there was powder stored in the W. A. Clark mine, and I immediately went to the telegraph office and sent the following dispatch to the manager of the W. A. Clark mine, which is located at Clarksville, N. Mex.

GALLUP, N. MEX., *May 9, 1900.*

W. L. BRETHERTON, *Agent, Clarksville, N. Mex.:*

It is rumored here that there is powder stored in the coal mine which you are manager of, known as the W. A. Clark mlne. If any powder is stored in the mine have it removed at once. Answer.

JOHN W. FLEMING,
United States Mine Inspector.

To the above dispatch I received the following reply:

CLARKSVILLE, N. MEX., *May 9, 1900.*

J. W. FLEMING,
United States Mine Inspector, Gallup, N. Mex.:

We always have stored our powder in a magazine, but just keep a little in the mine for daily delivery. Let me know if this is dangerous.

W. L. BRETHERTON.

I immediately sent the following dispatch to Mr. Bretherton:

GALLUP, N. MEX., *May 9, 1900.*

W. L. BRETHERTON,
Clarksville, N. Mex.:

Your telegram received. I consider it dangerous to have any powder stored in the mine, and have it removed as soon as possible.

JOHN W. FLEMING,
United States Mine Inspector.

May 10, 1900.—On this day Mr. Bretherton drove into the town of Gallup and informed me that the powder had been removed from the mine.

May 12, 1900.—On this date I again inspected the mine known as the W. A. Clark mine. I measured 13,860 cubic feet of air entering the mine per minute and measured 11,310 cubic feet of air returning per minute. The discrepancy between the intake and the outcast was caused by some of the air escaping through an old shaft on the east workings of the mine, which I ordered closed. I found several rooms on the first east entry driven up too far without having crosscuts driven between them, and ordered crosscuts driven between the rooms so as to cause the air to circulate up to the face of the workings. I also found considerable dust on the slope and entries and ordered Mr. Bretherton to have the slope and entries wet down and allow no dust to accumulate in the mine. I also took particular care to examine the place where the powder had been stored in the mine and found that the powder had been removed from the mine on May 9. A new air shaft is being sunk on this mine and when the shaft is connected with the underground workings a fan will be erected

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at the top of the shaft. Mr. Bretherton also informed me that he had ordered pipe for the purpose of laying a pipe line through the workings of the mine and would have it so arranged that hose could be attached every 100 feet along the pipe line, to be used for sprinkling all places where there was any dust.

June 19, 1900.—On this date I again inspected the mine known as the W. A. Clark mine. I measured 5,280 cubic feet of air entering the mine per minute and measured 5,620 cubic feet of air returning per minute. The air shaft of which I made mention in my report of May 12 is now connected with the underground workings, but the fan which is to be erected on this air shaft has not yet arrived, and Mr. Bretherton informed me that the fan would be erected just as soon as possible after its arrival at the mine.

OTERO MINE.

[Alex. Bowie, general manager; John Stewart, superintendent; James W. Bowie, mining engineer.]

This mine is located about 2½ miles in an easterly direction from the town of Gallup, Bernalillo County, N. Mex., and is owned and operated by the Caledonian Coal Company, of Gallup, N. Mex. This mine is situated on a spur about 1 mile in length, connecting with the Santa Fe Pacific Railway near Gallup station; is operated by a slope 1,400 feet in length, and has a capacity of 800 tons per day. Since my previous visit to this mine, on June 15, 1900, the company has reported the erection of a new 12-foot Crawford & McCrimmon fan, made by the Crawford & McCrimmon Company, of Brazil, Ind. Kind of coal, lignite; thickness of vein, 4 feet 6 inches; total output for fiscal year, 89,000 tons; estimated value of output, $139,724; value of improvements this year, $1,500; number of tons of coal used at mine, 500; average number of men employed outside, 30; average number of men employed inside, 150; average number of boys employed inside, 3; where coal is marketed, Santa Fe Pacific Railroad, Santa Fe, Prescott and Phoenix Railroad, and California; number of days mine worked, 280.

RECORD OF INSPECTION.

September 28, 1899.—On this date I inspected the mine known as the Otero mine. I measured 9,540 cubic feet of air entering the mine per minute and measured 11,340 cubic feet of air returning per minute. I found the workings of this mine well ventilated and in good condition.

The Caledonian Coal Company is also working two seams of coal, which lie above the Otero vein, which is being worked by a small force of men. I inspected the workings of the two veins and found them in good condition.

November 10, 1899.—On this day I again inspected the mine known as the Otero mine. I measured 13,000 cubic feet of air entering the mine per minute and measured 14,480 cubic feet of air returning per minute. I found the workings of the mine well ventilated. I found some loose rock in No. 2 left entry, and ordered the superintendent to have the loose rock removed and to have the place timbered with good and substantial timbers.

January 10, 1900.—On this day I again inspected the mine known as the Otero mine. I measured 9,600 cubic feet of air entering the mine per minute and measured 10,150 cubic feet of air returning per minute. I then inspected the working places throughout the mine and found them well ventilated and in good condition.

March 9, 1900.—On this day I again inspected the mine known as the Otero mine. I measured 9,360 cubic feet of air entering the mine per minute and measured 9,840 cubic feet of air returning per minute. I then inspected all of the underground workings of the mine and found the workings well ventilated and in good condition.

March 10, 1900.—On this day I was engaged in inspecting the mines known as the Otero mines Nos. 1 and 2, said mines being the upper veins of coal which overlie the original Otero mine, and are located on the same tract of land as the Otero mine. I inspected the workings of the two mines and found the workings in good condition. I also inspected the machinery belonging to the Otero mine and found the machinery in first-class condition.

April 12, 1900.—On this date I visited the Otero mine. Upon my arrival at the mine the superintendent informed me that Thomas G. McGrail had been injured in the mine on the 30th day of March, at 11 o'clock a. m., by a fall of top coal, and died from the injuries sustained on March 31, at about 3 o'clock a. m. (See report under the head of "Fatal accident report.")

On this date I visited every miner working in the mine and cautioned them about working under this top coal without using props to keep the top coal from falling on them, but it is almost impossible to get the miners to realize the great danger and chances they are taking, and on account of the top coal being of a tough nature, they neglect to use props to secure the top coal from falling. I have repeatedly cautioned the miners about using props when working under the top coal in order to secure their working places from all danger, but as a general rule they are so anxious to get out coal that they forget the danger and keep on working without securing their working places. I also told the superintendent that it was his duty to see that the miners used props to hold the top coal up while working under it. He informed me that he had time and time again cautioned the miners about working under the top coal without using props, but said that while some would obey his instructions others would not, and that all he could do was to furnish them the props, and if they would not use them he did not think the company responsible for their actions.

May 14, 1900.—On this date I again inspected the mine known as the Otero mine. I measured 5,760 cubic feet of air entering the mine per minute and measured 5,980 cubic feet of air returning per minute. At the bottom of the slope I measured 4,410 cubic feet of air traveling per minute. I then inspected all the underground workings of the mine and found the workings in good condition.

June 15, 1900.—On this date I again inspected the mine known as the Otero mine. I measured 19,040 cubic feet of air entering the mine per minute and measured 19,425 cubic feet of air returning per minute. I then measured 5,280 cubic feet of air traveling at the bottom of the slope, and measured 2,160 cubic feet of air traveling per minute in No. 2 cross entry. I found three rooms on No. 2 cross entry which required crosscuts driven between them, and ordered the superintendent to have crosscuts driven at the face of the rooms, so as to allow the air to circulate up to the face of the workings. The superintendent informed me that he would have the work of driving the crosscuts commenced immediately.

THATCHER MINE.

[Alex. Bowie, general manager; John Stewart, superintendent; James W. Bowie, mining engineer.]

This mine is located about 3 miles in an easterly direction from the town of Gallup, Bernalillo County, N. Mex., and is owned and operated by the Caledonian Coal Company, of Gallup, N. Mex. This mine is situated on a spur about 2 miles in length, being an extension of the spur on which the Otero mine is situated, and is connected with the Santa Fe Pacific Railroad near the station of Gallup. Since my previous visit to this mine, on June 18, 1900, the company has reported the erection of a 12-foot Crawford & McCrimmon fan, manufactured by the Crawford & McCrimmon Company, of Brazil, Ind. The mine is operated by a slope 1,100 feet in length, and has a capacity of 600 tons per day.

Kind of coal, lignite; thickness of vein, 4 feet 6 inches; total output for fiscal year, 32,000 tons; estimated value of output, $47,000; value of improvements this year, $12,000; number of tons of coal used at mine, 350; average number of men employed outside, 12; average number of men employed inside, 75; average number of boys, inside, 2; number of days mine worked, 280; where coal is marketed, Santa Fe Pacific Railway, Santa Fe, Prescott and Phoenix Railroad, and California.

RECORD OF INSPECTION.

September 22, 1899.—On this date I inspected the mine known as the Thatcher mine. I measured 3,300 cubic feet of air entering the mine per minute and measured 3,600 cubic feet of air returning per minute. I found the miners working too far in advance of the air at the face of the slope, and ordered a crosscut driven from the face of the back slope to the main slope.

November 6, 1899.—On this date I was informed that a miner had been killed in the Thatcher mine. (See fatal accident report, under head of "Fatal accidents.")

November 8, 1899.—On this date I again inspected the Thatcher mine. I inspected all the underground workings and took air measurements. I measured 5,600 cubic feet of air entering the mine per minute and measured 5,760 cubic feet of air returning per minute. I found a very small volume of air traveling at the face of the workings, and ordered all the stoppings along the slope made air-tight, so as to force the air up to the face of the workings. I also ordered a larger furnace erected in the upcast.

January 6, 1900.—On this date I again inspected the mine known as the Thatcher mine. I measured 8,800 cubic feet of air entering the mine per minute and measured 8,810 cubic feet of air returning per minute. I then inspected the underground workings of the mine and found the workings well ventilated and in good condition.

March 6, 1900.—On this date I again inspected the mine known as the Thatcher mine. I measured 7,220 cubic feet of air entering the mine per minute and measured 7,440 cubic feet of air returning per minute. I then inspected the underground workings of the mine and found the workings well ventilated and in good condition.

April 16, 1900.—On this day I again inspected the mine known as the Thatcher mine. I measured 14,400 cubic feet of air entering the mine per minute. I then inspected all of the underground workings of the mine and found the workings well ventilated. I found some loose rock in the roof of the main slope, and ordered the pit boss to have the loose rock taken down and the place timbered. The pit boss informed me that he would comply with my request. Otherwise I found the mine in good condition.

May 16, 1900.—On this day I again inspected the mine known as the Thatcher mine. I measured 8,825 cubic feet of air entering the mine per minute and measured 9,030 cubic feet of air returning per minute. I then inspected all of the underground workings of the mine and found a very bad roof in nearly all of the rooms. I ordered the pit boss to keep the miners supplied with plenty of timbers, and ordered the miners to keep their working places well timbered. On this date I was informed by the pit boss that a new fan had been ordered for this mine and that it would be erected on the mine just as soon as it arrived.

June 18, 1900.—On this date I again inspected the mine known as the Thatcher mine. I measured 12,000 cubic feet of air entering the mine per minute and measured 12,240 cubic feet of air returning per minute. I then inspected the underground workings of the mine and found the workings well ventilated and in good condition. A new fan is being erected on this mine which has a capacity of 30,000 cubic feet of air per minute. On this day the mine was not being operated.

GALLUP MINE.

[W. M. Weaver, general manager; Hugh McGinn, superintendent; John T. Kebler, general superintendent.]

This mine is located about 3 miles northwest of the town of Gallup, Bernalillo County, N. Mex., and was operated by the Crescent Coal Company up to the 1st day of April, 1900, when it went into the hands of the American Fuel Company; incorporators, Julian A. Kebler, Alfred C. Cass, and John L. Jerome, of Denver city, Colo. The company's principal place of business is at Denver, Colo., and its headquarters for New Mexico are at Gallup, N. Mex.

Since this mine passed into the hands of the above-named company it has been operated, as I am informed, by the Colorado Fuel and Iron Company, of Denver, Colo.

This mine is situated on a spur about 3 miles in length connecting with the Santa Fe Pacific Railroad near Gallup station, N. Mex. Kind of coal, lignite; thickness of vein, 6 feet; total output for fiscal year, 180,000 tons; estimated value of output, $250,000; depth of slope, 3,300 feet; value of improvements this year, $10,000; average number of men employed outside, 20; average number of men employed inside, 200; average number of boys employed inside, 5; where coal is marketed, New Mexico, Arizona, Texas, California, and Old Mexico; number of days mine worked, 300; number of tons of coal used at mine, 5,000.

RECORD OF INSPECTION.

September 25, 1899.—On this date I visited and inspected the mine known as the Gallup mine. The fan was running 90 revolutions per minute, and I measured 33,000 cubic feet of air entering the mine per minute and measured 33,210 cubic feet of air returning per minute. I also took air measurements throughout the workings, and found the workings well ventilated and in good condition.

November 13, 1899.—On this date I again inspected the mine known as the Gallup mine. The fan was running 65 revolutions per minute, and I measured 31,350 cubic feet of air entering the mine per minute and measured 32,770 cubic feet of air returning per minute. I then inspected No. 10 right entry and No. 15 left entry and the workings thereon. I found the workings well ventilated and in good condition.

November 14, 1899.—On this day I again inspected the Gallup mine. I inspected No. 11 straight entry, No. 1 right entry, and Nos. 1 and 2 right cross entries, and the workings thereon. I found the workings on the above-mentioned entries well ventilated and in first-class condition.

January 11, 1900.—On this day I again inspected the mine known as the Gallup mine. The fan was running 90 revolutions per minute, and I measured 32,000 cubic feet of air entering the mine per minute. I then inspected No. 11 straight entry and the workings thereon. I found the ventilation good throughout the workings. I found considerable dust in No. 11 straight entry, and ordered the pit boss to have it hauled out of the mine.

January 12, 1900.—On this date I again visited the Gallup mine, and inspected No. 15 left entry and the workings thereon; also No. 2 left entry, which is driven off from No. 11 straight entry. I measured 2,200 cubic feet of air traveling at the face of the workings on No. 15 left entry, but the current of air was not sufficient to clear the working places of smoke when the miners were shooting, and I ordered the pit boss to have more air conducted up to the face of the working places. The pit boss informed me that he would attend to the matter at once.

March 13, 1900.—On this day I was engaged in inspecting the mine known as the Gallup mine. I inspected No. 11 straight entry, No. 2 left entry, and Nos. 1 and 2 right cross entries, and the workings thereon. At the entrance to the above-described workings I measured 14,025 cubic feet of air traveling per minute. I then inspected all of the rooms and the working places on the entries, and found the air measurements to be as follows:

Air traveling per minute.

	Cubic feet
Face of No. 11 straight entry	3,900
Face of No. 2 left cross butt entry	3,825
Face of No. 2 right cross butt entry	3,150
Outlet from No. 2 right butt entries	3,750
Outlet from No. 2 left butt entries	4.375
Return at new outlet	9,450
Outlet at No. 1 cross butt entries	3,400

I found the workings to be well ventilated, and found the workings well timbered and in good condition.

March 14, 1900.—On this date I again visited the Gallup mine and inspected the main hauling slope and No. 15 left entry and the workings thereon. The fan was running 90 revolutions per minute, and I measured 34,650 cubic feet of air entering the mine per minute. I also measured 4,950 cubic feet of air traveling per minute at the face of No. 15 left entry. I then inspected the rooms and working places on said mentioned entry and found the workings in good condition.

April 13, 1900.—On this date I again inspected the mine known as the Gallup mine and found that it was being operated by the Colorado Fuel and Iron Company. The fan was running 85 revolutions per minute, and I measured 33,825 cubic feet of air entering the mine per minute. I then inspected the main hauling slope and No. 15 left entry. I also inspected the machinery belonging to the mine and found the machinery and workings of the mine in good condition.

May 6, 1900.—On this date I commenced my inspection of the Gallup mine. The fan was running 83 revolutions per minute, and I measured 42,570 cubic feet of air entering the mine per minute. I then inspected the new workings at the bottom of the slope and No. 15 left entry and the workings thereon. At the face of No. 15 left entry I measured 6,000 cubic feet of air traveling per minute. I then inspected the places which were being worked on the entry and found them in fair condition. The only work being done on this entry was the drawing of pillars, and I ordered the miners to use plenty of props and keep their places secure from all falls of rock.

May 9, 1900.—On this day I continued my inspection of the Gallup mine. I inspected No. 2 left entry, No. 11 straight entry, No. 4 cross entry, and the mine known as No. 3½. I found two miners drawing pillars at the face of No. 2 left entry. I considered that place dangerous, and ordered the miners to stop work. I also found considerable dust on the main entries and ordered the pit boss to keep the entries well wet down and allow no dust to accumulate in the mine. I found the air measurements to be as follows:

Air traveling per minute.

	Cubic feet.
Intake to No. 2 left entry	13,750
Face of No. 11 straight entry	5,100
Intake to No. 3½ vein	2,520
Last crosscut at face of workings on No. 3½ vein	2,160
Intake to No. 4 cross entry	6,325
Return from No. 4 cross entry	13,500

I found the workings of the mine well ventilated, and, with the exception of the face of No. 2 left entry, I found the workings well timbered and in good condition.

May 10, 1900.—On this day I was engaged in inspecting the machinery belonging to the Gallup mine. I inspected the fan, boilers, haulage ropes, car chains and couplings, and found the same in good condition.

June 13, 1900.—At 9.40 p. m. of this day I was notified that two men, who were working on the night shift in the Gallup mine, had been killed. I immediately hired a conveyance and drove to the mine and went down into the mine where the accident had occurred. (See full report under the head of "Fatal Accidents.")

June 16, 1900.—From the time that the explosion occurred in the Gallup mine until June 16 the mine did not work, and on this day I was informed that the Gallup mine would resume work again. I visited the mine, and upon my arrival at the mine I was informed that only a few company men were going to work and their business was to examine the mine thoroughly and repair any damage which was caused by the powder explosion of June 13. I went down into the mine with the men and directed some of the work, such as having the stoppings along the slope closed properly and made air-tight; also the timbering in the slope. I also inspected the entry known as No. 11 entry and the workings thereon. I found the entry well wet down and found the workings on the entry in good condition.

This mine shows an increase in production of 28,475 tons, an increase in estimated value of $38,000, increase in improvements of $5,883, and the mine was operated 59 days more than last year, but a decrease of 50 men in the average number of men employed as compared with the fiscal year ending June 30, 1899.

CATALPA MINE.

[W. M. Weaver, general manager; Hugh McGinn, superintendent; John T. Kebler, general superintendent.]

This mine is located about 3 miles in a southeasterly direction from the town of Gallup, Bernalillo County, N. Mex., and was operated by the Crescent Coal Company up to the 1st day of April, 1900, when it went into the hands of the American Fuel Company, incorporators, Julian A. Kebler, Alfred C. Cass, and John L. Jerome, of Denver City, Colo. The company's principal place of business is at Denver, Colo., and its headquarters for New Mexico are at Gallup, N. Mex.

Since this mine passed into the hands of the above-named company it has been operated, as I am informed, by the Colorado Fuel and Iron Company, of Denver, Colo.

This mine is situated on a railway spur 3 miles in length connecting with the Santa Fe Pacific main line near Gallup Station, N. Mex. Kind of coal, lignite; thickness of vein, 6 feet; total output for fiscal year, 80,000 tons; estimated value of output, $110,000; depth of slope, 2,000 feet; value of improvements this year, $6,000; average number of men employed outside, 10; average number of men employed inside, 100; average number of boys employed inside, 2; where coal is marketed, New Mexico, Arizona, and California; number of days mine worked, 285; number of tons of coal used at mine, 1,510.

RECORD OF INSPECTION.

September 29, 1899.—On this date I inspected the mine known as the Catalpa mine. I measured 7,560 cubic feet of air entering the mine per minute and measured 7,600 cubic feet of air returning per minute. I found the workings of the mine well ventilated and in good condition.

November 6, 1899.—On this date I again inspected the mine known as the Catalpa mine. I measured 7,612½ cubic feet of air entering the mine per minute and measured 7,865 cubic feet of air returning per minute. I discovered some gas (fire damp) at the face of No. 2, left main entry, and ordered the pit boss to have canvas brattice put up from the last crosscut on the entry to the face of the main entry, so as to force the air up to the face of the entry and sweep the gas away.

January 9, 1900.—On this date I again inspected the mine known as the Catalpa mine. I measured 8,500 cubic feet of air entering the mine per minute and measured 8,800 cubic feet of air returning per minute. I then inspected all of the underground workings of the mine and found the workings well ventilated and in good condition.

March 7, 1900.—On this day I again inspected the mine known as the Catalpa mine. Since my previous visit to this mine a 12-foot Crawford & McCrimmon fan has been erected on the mine and I found the ventilation very much improved. I measured 17,325 cubic feet of air entering the minute and found the air measurements throughout the workings to be as follows:

Air traveling per minute.

	Cubic feet.
Crosscut and face of second right entries	7,200
Face of No. 3 right entries	7,650
Crosscut at face of No. 4 right entries	6,480
Crosscut at face of No. 3 left entries	5,940
Return at fan	18,450

I found the workings of the mine well ventilated and in good condition.

April 11, 1900.—On this date I was informed that Anton Vicich, an Austrian, had been killed in the Catalpa mine, said fatal accident having occurred on the 7th day of April, 1900. I visited the mine and inspected the place where the accident occurred. (See full report under the head of "Fatal accidents.")

April 18, 1900.—On this date I was informed that a small feeder of gas (fire damp) had been encountered in the Catalpa mine at the bottom of the slope. I visited the mine and found that some gas had been generating at the bottom of the slope, and I ordered the pit boss to erect canvas brattice and keep the air circulating up to the face of the coal; also to have all places in the mine thoroughly examined for gas every morning before the miners commenced work, and if gas was found in any of the places of the mine to have it removed before any person was allowed to commence work in said place. The pit boss informed me that he would comply with my request and would use every precaution for the safety of the persons employed in the mine.

May 5, 1900.—On this day I was again engaged in inspecting the mine known as the Catalpa mine. The fan was running 95 revolutions per minute, and I measured 20,790 cubic feet of air entering the mine per minute. I then inspected Nos. 3 and 4, left entries, and Nos. 3 and 4, right entries, and the workings thereon. I found the air measurements to be as follows:

Air traveling per minute.

	Cubic feet.
Last crosscut near face of No. 3 left entry	2,080
No. 2 crosscut near face of No. 3 left entry	5,142½
Last crosscut near face of No. 4 left entry	3,600
No. 2 crosscut near face of No. 4 left entry	2,520
Last crosscut at bottom of slope	5,201
Last crosscut at face of No. 4 right entry	11,700
Last crosscut near face of No. 3 right entry	2,047½
No. 2 crosscut near face of No. 3 right entry	6,352½

I found the workings of the mine well ventilated and in good condition.

May 7, 1900.—On this date I again visited the Catalpa mine. I inspected No. 2, right entry, and the workings thereon. I measured 5,040 cubic feet of air traveling through the last crosscut near the face of the entry. I found the workings on this entry in good condition. I then inspected the old abandoned working places for the purpose of ascertaining if there was any gas in the workings, but found none. I then measured the air in the return-air course and found 21,780 cubic feet of air returning per minute. After finishing my inspection of the mine I met Mr. John T. Kebler, who is general superintendent of the Colorado Fuel and Iron Company, and told him that some gas (CH_4) had been discovered in the mine and that I wanted a fire boss employed for the purpose of examining the mine thoroughly for gas every morning before the miners commenced work. Mr. Kebler informed me that he would attend to the matter and have a fire boss to commence work on the following morning.

May 8, 1900.—On this day I called at the office of the Colorado Fuel and Iron Company and inquired of Mr. McGinn, who is superintendent, if a fire boss had been put to work at the Catalpa mine. He informed me that a fire boss commenced working early in the morning.

June 12, 1900.—On this date I again visited the Catalpa mine, and upon my arrival at the mine I found that the mine was not being operated. I inspected the machinery belonging to the mine, consisting of the fan, boilers, hoisting engine, haulage ropes, car couplings, etc. I found the machinery in good condition.

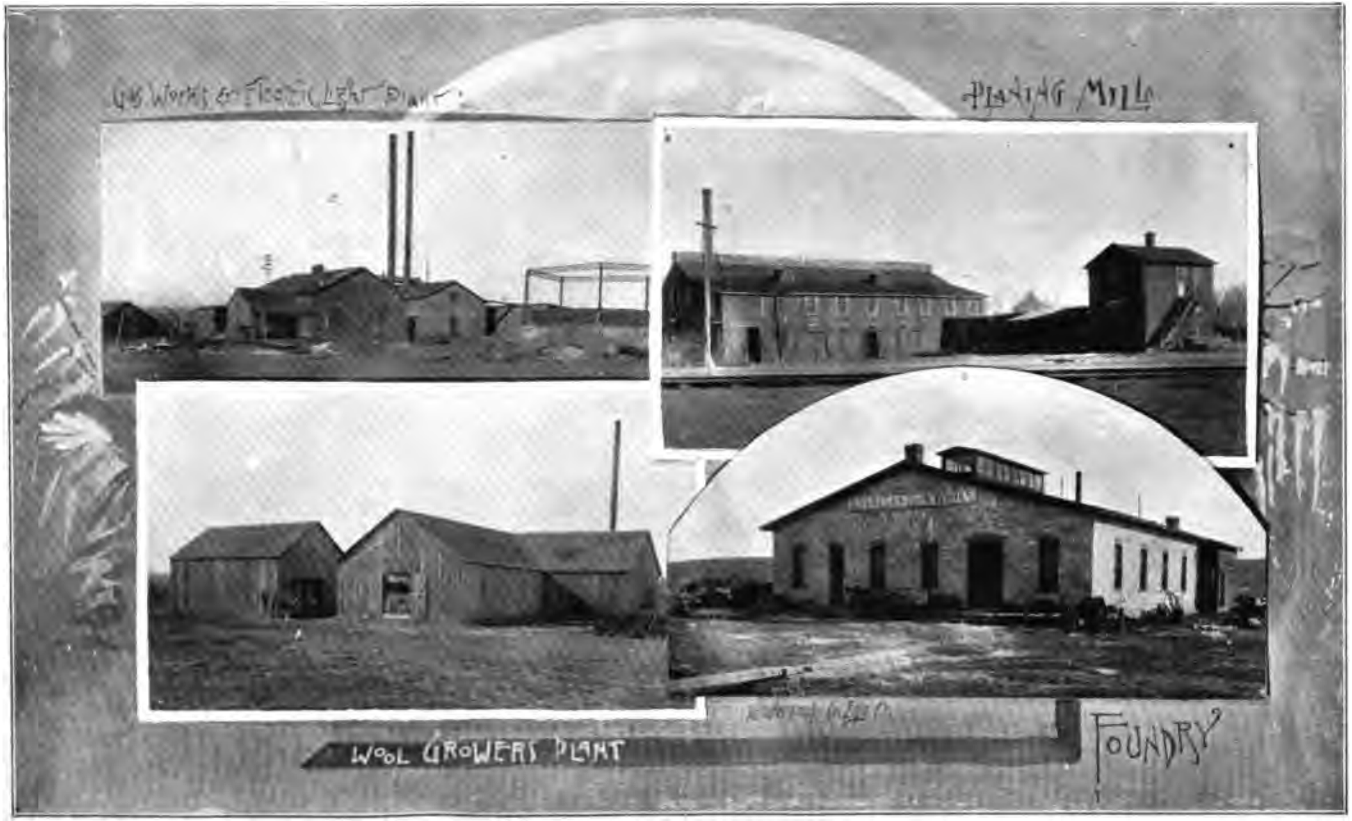
June 13, 1900.—On this day I again visited the Catalpa mine and inspected the underground workings. The fan was running 95 revolutions per minute, and I measured 17,710 cubic feet of air entering the mine per minute and measured 18,150 cubic feet of air returning per minute. I found the air distributed as follows:

Air traveling per minute.

	Cubic feet.
No. 1 crosscut at bottom of slope	4,000
No. 2 crosscut at bottom of slope	4,860
Last crosscut at face of No. 4, left entry	5,070
Last crosscut at face of No. 4, right entry	3,310

I found the workings of the mine well ventilated and in good condition.

This mine shows an increase of production of 21,939 tons, an increase of $28,720 in estimated value of output, and the mine worked forty-nine days more than during the fiscal year ending June 30, 1899.



INDUSTRIAL PLANTS, LAS VEGAS.

CROWN POINT MINE.

[W. M. Weaver, general manager; Hugh McGinn, superintendent; John T. Kebler, general superintendent.]

This mine is located about 3 miles in a northerly direction from the town of Gallup, Bernalillo County, N. Mex., and was operated by the Crescent Coal Company up to the 1st day of April, 1900, when it passed into the hands of the American Fuel Company. Incorporators, Julian A. Kebler, Alfred C. Cass, and John L. Jerome, of Denver City, Colo. The company's place of business, principally, is at Denver, Colo., and its headquarters for this Territory are at Gallup, N. Mex.

After passing into the hands of the American Fuel Company the mine was closed down on April 3, and since that time no work has been done in the mine. Kind of coal, lignite; thickness of vein, 4 feet; total output for fiscal year, 40,000 tons; estimated value of output, $55,000; depth of shaft, 225 feet; value of improvements this year, $1,000; average number of men employed outside, 7; average number of men employed inside, 35; average number of boys employed inside, 2; where coal is marketed, Arizona and California; number of days mine worked, 280; number of tons of coal used at mine, 1,500.

RECORD OF INSPECTION.

September 27, 1899.—On this date I was engaged in inspecting the mine known as the Crown Point mine. The fan was running 85 revolutions per minute, and I measured 12,840 cubic feet of air entering the mine per minute and measured 15,325 cubic feet of air returning per minute. I found some water in the main air course and ordered the pit boss to have it taken out; otherwise I found the mine well ventilated and in good condition.

November 11, 1899.—On this day I again inspected the mine known as the Crown Point mine. The fan was running 80 revolutions per minute, and I measured 9,950 cubic feet of air entering the mine per minute and measured 11,400 cubic feet of air returning per minute. I found the workings of the mine well ventilated and in good condition.

January 13, 1900.—On this day I again inspected the mine known as the Crown Point mine. The fan was running 70 revolutions per minute, and I measured 11,000 cubic feet of air entering the mine per minute and measured 11,600 cubic feet of air returning per minute. I then inspected all of the underground workings of the mine and found the workings well ventilated. I found two places in the roof of the main hauling entry in bad condition and ordered the pit boss to have the place timbered. He informed me that he would have the night shift timber the places.

March 12, 1900.—On this day I again inspected the mine known as the Crown Point mine. The fan was running 100 revolutions per minute, and I measured 19,200 cubic feet of air entering the mine per minute and measured 19,800 cubic feet of air returning per minute. I then inspected all of the underground workings of the mine and found the workings well ventilated and in good condition.

As this mine was closed down on the third day of April, 1900, I did not again visit the mine.

ROCKY CLIFF MINE.

[Stephen Canavan, owner and general manager.]

This mine is located about 2 miles in an easterly direction from the town of Gallup, Bernalillo County, N. Mex. Owned and operated by Stephen Canavan. Kind of coal, lignite; thickness of vein, 4 feet 6 inches; total output for fiscal year, 28,100 tons; estimated value of output, $39,340; length of slope, 1,000 feet; value of improvements this year, $5,000; average number of men employed outside, 4; average number of men employed inside 46; where coal is marketed, New Mexico, Arizona, and California; number of days mine worked, 175.

RECORD OF INSPECTION.

November 15, 1899.—On this date I visited and inspected the mine known as the Rocky Cliff mine. I measured 6,300 cubic feet of air entering the mine per minute and measured 6,475 cubic feet of air returning per minute. I found some of the miners working under what is known as the top coal without using props to secure the top coal from falling on them, and ordered the miners to use plenty of props and secure their working places from all danger.

January 5, 1900.—On this date I again inspected the mine known as the Rocky Cliff mine. I measured 2,380 cubic feet of air entering the mine per minute and measured 2,500 cubic feet of air returning per minute. I found a very small amount of air traveling through the rooms on Nos. 1, right and left entries, and ordered connection made between the rooms on the above-mentioned entries and Nos. 2, right and left entries. Mr. Canavan informed me that the work would be pushed as fast as possible until the connections were made.

March 5, 1900.—On this date I again inspected the mine known as the Rocky Cliff mine. I measured 5,550 cubic feet of air entering the mine per minute and measured 5,580 cubic feet of air returning per minute. I then inspected the underground workings of the mine and found the volume of air traveling through the workings on the right of the slope was not sufficient for the miners who were working on the right side, and I ordered the pit boss to have a heavy canvas curtain placed across the slope so as to force a larger volume of air around through the workings on the right of the slope. Otherwise I found the mine in good condition.

April 14, 1900.—On this day I again inspected the mine known as the Rocky Cliff mine. I measured 10,800 cubic feet of air entering the mine per minute. I then inspected the underground workings of the mine and found the workings well ventilated and in fair condition.

May 11, 1900.—On this day I again inspected the mine known as the Rocky Cliff mine. I measured 11,060 cubic feet of air entering the mine per minute, and measured 12,040 cubic feet of air returning per minute. I then inspected all of the working places in the mine. I again found some of the miners working under what is known as the top coal without timbering the same, and ordered them to timber their places before mining any more coal. At the bottom of the slope I found that the ventilation was deficient, and ordered the pit boss to force more air down to the bottom of the slope. He informed me that he would have the matter attended to the following day.

June 20, 1900.—On this day I again inspected the mine known as the Rocky Cliff mine. I measured 5,540 cubic feet of air entering the mine per minute and measured 5,950 cubic feet of air returning per minute. I then inspected all of the underground workings of the mine and found the workings well ventilated and in good condition.

This mine is located on a railroad spur connecting with the Santa Fe Pacific Railroad near Gallup station. The mine is ventilated by a furnace, and has a capacity of 200 tons per day. All haulage is done by mules.

This mine shows an increase in production of 23,100 tons, an increase in estimated value of $31,840, an increase of 40 men employed, and a decrease in number of days mine worked of 25 days, over the fiscal year ending June 30, 1899.

UNION MINE.

[President, J. C. Spears; vice-president, T. A. Fabro; superintendent Wm. McVicker; and D. Clark, secretary.]

This mine is located about 1½ miles south of the town of Gallup, Bernalillo County, N. Mex., and was formerly known as the Beacon Hill mine, and is so reported in my monthly reports of inspection. This mine was not operated during the fiscal year ending June 30, 1899. Since the 15th day of November, 1899, this mine has been operated by the Union Coal Company, which was incorporated in the month of May, 1900, with the above-named officers. Kind of coal, lignite; thickness of vein, 6 feet; total output for fiscal year, 3,000 tons; estimated value of output, $6,000; length of slope, 700 feet; value of improvements this year, $2,000; average number of men employed outside, 4; average number of men employed inside, 7; average number of boys employed inside, 1; where coal is marketed, California, Arizona, and New Mexico; number of days mine worked, 160; number of tons of coal used at mine, 50.

RECORD OF INSPECTION.

January 15, 1900.—On this date I inspected the Union mine, formerly known as the Beacon Hill mine, and on this date I inspected the underground workings of the mine and found the workings in good condition. At the time of my visit to the mine there were only five miners employed therein, and connection had not been made between the workings of the mine and the air shaft, and for that reason I did not take any air measurements.

March 6, 1900.—On this day I again visited and inspected the mine known as the Union mine, formerly the Beacon Hill mine. I measured 1,440 cubic feet of air entering the mine per minute, and measured 1,548 cubic feet of air returning per minute. I found the workings of the mine well ventilated and in good condition.

May 15, 1900.—On this day I again inspected the mine known as the Union mine, formerly the Beacon Hill mine. On this day the mine was not being operated and I took no air measurements. I found that 10 kegs of powder were stored in the mine and ordered Mr. McVicker to have it removed from the mine. He informed me that he would remove the powder before any more work was done in the mine.

A small hoisting plant (steam) is erected at the mine for the purpose of hoisting the coal out of the mine. The coal is hauled in wagons to the Santa Fe Pacific Railroad at Gallup station, and there loaded on the cars and shipped to the various points.

STEWART MINE.

[William Stewart, manager.]

This mine, which was originally known as the Black Diamond mine, is located one-half mile north of the town of Gallup, Bernalillo County, N. Mex., and is owned by the Santa Fe Pacific Railway Company and is operated under lease by William Stewart. This mine is ventilated by an air shaft and has a capacity of 100 tons per day. Kind of coal, lignite; thickness of vein, 6 feet; total output for fiscal year, 6,000 tons; estimated value of output, $10,000; depth of slope, 400 feet; value of improvements this year, $500; average number of men employed outside, 8; average number of men employed inside, 10; where coal is marketed, California, New Mexico, and Arizona; number of days mine worked, 200.

RECORD OF INSPECTION.

September 12, 1899.—On this date I inspected the mine known as the Stewart mine, which was being operated under lease by William Stewart. I measured 1,200 cubic feet of air entering the mine per minute, and measured 1,350 cubic feet of air returning per minute. I found the roof of No. 2 right room in a dangerous condition and ordered the room timbered at once. The miner who was working in the room commenced the work of timbering, and informed me that he would timber the room in good shape and secure it from all danger before any more coal was mined.

November 4, 1899.—On this day I again inspected the mine known as the Stewart mine. I found the air course in very bad condition, and ordered the air course cleared of all falls of rock and put into good condition. The work of clearing the air course was commenced at once.

January 15, 1900.—On this day I again inspected the mine known as the Stewart mine. I measured 3,500 cubic feet of air entering the mine per minute, and measured 3,600 cubic feet of air returning per minute. I then inspected all the working places of the mine and found the mine in good condition.

March 6, 1900.—On this date I again inspected the mine known as the Stewart mine. I measured 3,450 cubic feet of air entering the mine per minute, and measured 3,600 cubic feet of air returning per minute. I then inspected all of the underground workings of the mine, and on the right side of No. 1 entry I found three rooms driven up too far without crosscuts, and ordered Mr. Stewart to have crosscuts driven at the face of the rooms so as to allow the air to circulate up to the face of the workings, which would give good, fresh air to the miners. Mr. Stewart informed me that he would either have the crosscuts driven or stop work in the rooms.

April 18, 1900.—On this day I again inspected the mine known as the Stewart mine. I measured 3,780 cubic feet of air entering the mine per minute, and measured 3,960 cubic feet of air returning per minute. I then inspected the underground workings of the mine and found the workings in good condition.

May 15, 1900.—On this day I again inspected the mine known as the Stewart mine. I found that the air was not being forced up to the face of the workings, and I ordered Mr. Stewart to have crosscuts driven at the face of all rooms, and I also ordered him to erect a furnace in the upcast. Mr. Stewart informed me that he would comply with my request as soon as possible. I found the roof of No. 1 straight entry, and ordered work stopped in said entry until it was timbered.

June 21, 1900.—On this day I again inspected the mine known as the Stewart mine. I measured 2,100 cubic feet of air entering the mine per minute. I then inspected all the underground workings of the mine and found the workings in fair condition.

LINCOLN COUNTY.

OLD ABE COAL MINE.

[John Y. Hewitt, president; William Watson, vice-president; Levin W. Stewart, secretary.]

This mine is situated about 12 miles in a northerly direction from Carrizosa station, on the El Paso and Northeastern Railroad, and a distance of about 3 miles from the town of White Oaks. This mine is owned and operated by the Old Abe Company, with the above named officers. Kind of coal, bituminous; thickness of vein, 3 feet 6 inches; total output for fiscal year, 4,246 tons; estimated value of output, $9,649.58; depth of slope, 400 feet; average number of men employed outside, 1; average number of men employed inside, 9; where coal is marketed, White Oaks, N. Mex., and El Paso, Tex.; number of days mine worked, 300.

RECORD OF INSPECTION.

December 8, 1899.—On this date I inspected the mine known as the Old Abe Coal mine. I found the miners working on No. 2 left entry, where the air was so bad that their lamps would not burn more than five minutes at any one time, and I immediately ordered the men to get out of that entry. I instructed the pit boss to have no more work done on the entry until such time as the air was conducted up to the face of the entry. The pit boss informed me that he would comply with my request.

June 8, 1900.—On this date I again inspected the Old Abe Coal mine. I found the air course of this mine in very bad condition, and ordered the air course cleared of all falls of rock, and also ordered the pit boss to timber the air course and keep it in good condition.

This mine shows an increase in production of 2,777 tons, an increase in estimated value of $5,977.08, and an increase in number of days mine worked of 128, over the fiscal year ending June 30, 1899.

The coal is hoisted out of this mine by means of a whim and horsepower, and the coal is hauled in wagons to the town of White Oaks, N. Mex., and sold to the local trade, and also supplies fuel for a 20-stamp mill which is situated on the Old Abe gold mine. During the past fiscal year the Old Abe Company hauled 688 tons of coal to Carrizosa station, on the El Paso and Northeastern Railroad, where it was loaded on the cars and shipped to El Paso for sale to the local trade.

This mine has a capacity of 100 tons per day.

NEW MEXICO FUEL COMPANY'S MINES.

[W. P. Thompson, general manager.]

The New Mexico Fuel Company owns and operates the coal fields which are located at Capitan, in Lincoln County, N. Mex., about 165 miles from El Paso, Tex. Capitan is the terminus of the El Paso and Northeastern Railroad, which was completed in the month of September, 1899, and the first carload of coal was shipped from the company's mines on September 29, 1899.

Since the opening of the company's mines the town of Capitan has built up quite rapidly. It now has 50 dwelling houses, a large hotel and boarding house, a hospital maintained by the company, and an estimated population of 400.

AKERS MINE NO. 1.

[W. P.Thompson, general manager.]

This mine is located at Capitan, N. Mex, owned and operated by the New Mexico Fuel Company, and is equipped with a 10 by 12 hoisting engine, 60 and 40 horsepower boilers, a 10-foot fan, and a good blacksmith shop. Kind of coal, bituminous; thickness of vein, 3 to 6 feet; total output for fiscal year, 41,260 tons; estimated value of output, $82,520; depth of slope, 800 feet; value of improvements this year, $10,000; average number of men employed outside, 10; average number of men employed inside, 75; where coal is marketed, El Paso, Tex.; number of days mine worked, 225; number of tons of coal used at mine, 350.

RECORD OF INSPECTION.

October 12, 1899.—On this date I first inspected the mine known as the Akers mine No. 1, which is owned and operated by the New Mexico Fuel Company. This mine was ventilated by a furnace, and I measured 5,670 cubic feet of air entering the mine per minute and measured 5,850 cubic feet of air returning per minute. I found the workings of the mine well ventilated and in good condition.

December 5, 1899.—On this date I again inspected the mine known as the Akers mine No. 1. I measured 7,310 cubic feet of air entering the mine per minute and measured 7,560 cubic feet of air returning per minute. I then inspected all of the underground workings of the mine and found the workings well ventilated and in good condition.

February 6, 1900.—On this day I again inspected the mine known as the Akers mine No. 1. I measured 9,450 cubic feet of air entering the mine per minute and measured 9,720 cubic feet of air returning per minute. I also measured 2,800 cubic feet of air traveling per minute at the face of No. 2 left entry. I found the workings of the mine in good condition.

April 6, 1900.—On this date I again inspected the mine known as Akers mine No. 1. Since my previous visit to this mine, February 6, a new 10-foot Crawford & McCrimmon fan has been erected on the mine, and I measured 17,820 cubic feet of air entering the mine per minute and measured 19,800 cubic feet of air returning per minute. I then inspected all of the underground workings of the mine and found the workings well ventilated. I found some of the rooms on No. 1 left entry which required timbering and ordered the superintendent to have the rooms timbered at once. The superintendent ordered the timbermen to commence timbering the rooms immediately.

June 5, 1900.—On this date I again inspected the mine known as the Akers mine No. 1. The fan was running 52 revolutions per minute, and I measured 15,660 cubic feet of air entering the mine per minute and I measured 16,200 cubic feet of air returning per minute. I then inspected all of the underground workings and found them in good condition.

AKERS MINE NO. 4.

[W. P. Thompson, general manager.]

This mine is located at Capitan, N. Mex. Owned and operated by the New Mexico Fuel Company. This mine is equipped with a 10 by 12 hoisting engine, a 12-foot fan, an 18 by 20 Howard air compressor, and two 60-horsepower boilers. This mine is situated on the same vein of coal as the Akers Mine No. 1 and is about 1 mile distant from it. Kind of coal, bituminous; thickness of vein, 2½ to 6 feet; total output for fiscal year, 29,327 tons; estimated value of output, $58,654; depth of slope, 850 feet; value of improvements this year, $9,500; average number of men employed outside, 7; average number of men employed inside, 50; where coal is marketed, El Paso, Tex.; number of days mine worked, 175; number of tons of coal used at mine, 400.

RECORD OF INSPECTION.

December 6, 1899.—On this date I was engaged in inspecting the mine known as the Akers mine No. 4. At the time of my visit the only work being done on the mine was development work. I found the workings of the mine in good condition.

February 7, 1900.—On this date I again inspected the mine known as Akers mine No. 4. I found a very small amount of air traveling through the workings of the mine and ordered the general manager to have a furnace erected at the top of the upcast. The work of erecting the furnace commenced immediately.

April 7, 1900.—On this date I again inspected the mine known as the Akers mine No. 4. Since my previous visit to this mine, February 7, a new 12-foot Crawford & McCrimmon fan has been erected on the mine. The fan was running 36 revolutions per minute, and I measured 11,760 cubic feet of air entering the mine per minute and measured 12,600 cubic feet of air returning per minute. I found the workings of the mine well ventilated, but found the roof of all rooms which were driven off from No. 1 left entry in bad condition. I ordered the superintendent to keep the rooms well timbered and secure from all danger. The superintendent ordered the timbers brought into the mine and instructed the miners to timber their places before mining any more coal.

June 5, 1900.—On this date I again visited the mine known as Akers mine No. 4. The fan was running 65 revolutions per minute, and I measured 27,000 cubic feet of air entering the mine per minute and measured 27,270 cubic feet of air returning per minute. I found the workings of the mine in good condition.

AYERS MINES NOS. 2, 7, AND 8.*

[W. P. Thompson, general manager.]

These mines are situated at Capitan, N. Mex., and are owned and operated by the New Mexico Fuel Company. These mines are located about 3,000 feet from Akers mine No. 1, and apparently upon a second seam of coal, although it is difficult to tell from the present amount of development work whether there is one or two seams of coal. Each mine is equipped with an 8 by 10 hoisting engine, and the mines are each ventilated by an air shaft. There is a tramway leading from Nos. 7 and 8 mines to No. 2 mine tipple, where the coal from Nos. 7 and 8 is loaded into the railroad cars. No. 2 mine is operated by a slope 250 feet in length. This mine has been worked out and abandoned. Kind of coal, bituminous; thickness of vein, 4 feet; total output for fiscal year, 13,227 tons; estimated value of output, $26,454; depth of slopes, No. 7, 325 feet; No. 8, 220 feet; value of improvements this year, $3,500; average number of men employed outside, 3; average number of boys outside, 2; average number of men employed inside, 50; where coal is marketed, El Paso, Tex.; number of days mines worked, 175; number of tons of coal used at mines, 100.

RECORD OF INSPECTION.

October 13, 1899.—On this day I inspected the mine known as the Ayers mine No. 2. At the time of my visit there was no work being done on this mine. I inspected the underground workings of the mine and found them well timbered and in splendid condition. A fault was encountered at the face of the slope and work was suspended. The company was prospecting with a diamond drill in ahead of the fault, and if the vein of coal is encountered with the drill work will be resumed on the mine.

December 6, 1899.—On this date I again inspected the mine known as the Ayers mine No. 2, and found the workings of the mine well timbered and in good condition.

February 8, 1900.—On this day I again inspected the mine known as the Ayers mine No. 2. On this date very little work was being done in the mine, only 10 men being employed therein. I found the workings of the mine in good condition. On this date I also inspected Nos. 7 and 8 mines, being located on the same vein as No. 2 mine. Very little work was being done in the mines. The production from the two mines was about 40 tons per day. I found the workings of the mines in good condition.

June 6, 1900.—On this date, I again inspected the mines known as Ayers mines Nos. 7 and 8. I found the mines to have a very bad and dangerous roof and ordered the superintendent to have an extra timberman employed for the purpose of keeping the mines well timbered. The superintendent employed a timberman immediately. I also ordered the superintendent to have an entry driven and make connection between Nos. 7 and 8 mines so as to give the air a chance to circulate throughout the workings. The superintendent informed me that the work of driving the entry would be pushed to completion as speedily as possible.

The company has had three prospecting slopes driven down on the veins of coal designated as Nos. 3, 5, and 6 mines, but no machinery has been erected on said mentioned mines and no coal has been shipped from these openings.

Since September 29, when the first coal was shipped from the company's mines at Capitan, there has been a total production of 83,814 tons, which has an estimated value at the mines of $167,628. The average number of men employed at the mines is 195, and 2 boys. Had it not been for the scarcity of miners the production would have been much larger.

SANTA FE COUNTY.

COOK & WHITE MINE.

[John T. Kebler, general superintendent; H. J. Elliott, superintendent at mines.]

This mine is located about 3 miles south of the town of Los Cerrillos, Santa Fe County, N. Mex., at the town of Madrid, and was operated by the Cerrillos Railroad Company until October 6, 1899, at which time it passed into the hands of the Colorado Fuel and Iron Company, of Denver, Colo., and is being operated under lease by this company from the Los Cerrillos Railroad Company, which latter company, as I am informed, is the owner of the property. Kind of coal, bituminous; thickness of vein, 3 feet 9 inches; total output for fiscal year, 67,117 tons; estimated value of output, $100,675; depth of slope, 2,266 feet; value of improvements this year

$4,500; average number of men employed outside, 25; average number of men employed inside, 95; average number of boys employed outside, 1; average number of boys employed inside, 7; where coal is marketed, Arizona, New Mexico, Texas, and Old Mexico; number of days mine worked, 280 days; number of tons of coal used at mine, principally slack, 5,892 tons.

This mine is situated on a branch line of the Atchison, Topeka and Santa Fe Railroad which connects with the main line at Waldo station.

The town of Madrid, numbering about 1,200 people, is situated at the terminus of this branch, and is the post-office address of the company in New Mexico. The company owns all the dwelling and business houses of the town of Madrid, which supports a city hall, excellent school, and two churches. The company houses are substantially built, kept in good repair, and rented to the employees. The company also operates a large store in connection with the mines in which is kept a large assortment of general merchandise, in fact everything that the miners need.

In this coal-mining camp there are numerous seams of coal. There are two principal seams, one being bituminous, which is known as the Cook & White mine, the other anthracite, which is known as the Lucas mine. The bituminous vein lies directly under the anthracite vein, a distance of about 150 feet.

The mine is ventilated by means of two exhaust fans, one fan being located on the south side of the main slope and the other on the north side, the main slope being the intake for both fans. The air current going down the main slope splits or goes both ways at the bottom, returning on either side through the workings and up the parallel slopes, which are parallel to the main slope, with a pillar 50 feet thick between them. Each air current then travels its respective side of the mine through all the workings and out by way of the fans. The mine is thus kept clearly ventilated through all its parts.

The whole outside plant is well equipped with a battery of 8 large boilers, 2 large Ingersoll air compressors, and a large 300-horsepower Corliss engine; also tipple, trestle, scales, and other machinery and appliances.

The coal from this mine is screened into three different grades, to wit, the "lump" and "nut," both used for domestic purposes, and the "slack," used for steam purposes; and some of the coal is sold as unscreened coal, or as "run of mine," used for heavy steaming purposes.

RECORD OF INSPECTION.

August 31, 1899.—On this date I commenced my inspection of the mine known as the Cook & White mine. I inspected the main hauling slope and No. 3 right and left entries and the workings thereon. I found some gas (fire damp) at the face of No. 3 left back entry and ordered a crosscut driven at the face of the entry; otherwise I found the workings which I inspected well ventilated and in good condition. I found the air measurements throughout the workings to be as follows:

Air traveling per minute.

	Cubic feet.
Intake on main slope	35,520
Left return near bottom of slope	9,600
Bottom of slope	7,500
Face of third left main entry	6,720
Face of third left back entry	6,160
Return from third left main entry to second left entry	9,600
Right return near bottom of slope	14,400
Face of third right main entry	4,680
Face of third right back entry	4,320
Back entry in front of last slant	10,800
Intake to No. 2 raised plane, on third right entry	6,120
Air traveling on slope above No. 3 entries	25,850

September 1, 1899.—I continued my inspection of the Cook & White mine and inspected No. 2 right and left entries and the workings thereon. I found No. 2 right entries driven too far without a crosscut and ordered the pit boss to have a crosscut driven from the face of the main entry to the back entry. I also found very little air traveling at the top of No. 3 raised plane and ordered more air forced to the top of the plane. I found the air measurements throughout the workings to be as follows:

Air traveling per minute.

	Cubic feet.
Face of No. 2 right entry	960
Intake to No. 3 raised plane	7,280
Crosscut between Nos. 1 and 2 left rooms on No. 3 raised plane	3,840
Crosscut between Nos. 2 and 3 left rooms on No. 3 raised plane	2,925
Crosscut between Nos. 3 and 4 left rooms on No. 3 raised plane	1,920
Crosscut between Nos. 1 and 2 right rooms on No. 3 raised plane	2,430
Bottom of No. 1 dip plane on second left entry	4,000
Return from second left entry to first left entry	7,800

September 2, 1899.—I inspected No. 1 right and left entries and the workings thereon, and took air measurements throughout the workings, which I found to be as follows:

Air traveling per minute.

	Cubic feet.
Intake on main slope	39,360
Intake on No. 3 raised plane on No. 1 right entry	18,000
Return at No. 1 fan	19,250
Return at No. 2 fan	41,000

I then visited No. 3 left entries and found that the crosscut had been driven from the face of No. 3 back entry to No. 3 main entry, per my instructions of August 31.

September 7, 1899.—On this date I again visited the Cook & White mine for the purpose of inspecting the old abandoned working places. I inspected the abandoned workings on the first right entry and also No. 1 raised plane on the second right entry and found them clear of gas. I then inspected No. 4 raised plane on the second right entry and found some gas (fire damp) up at the top of the plane. I ordered all work discontinued at the top of the plane until such time as enough of air was traveling at the top of the plane to sweep away any gas that was generating. I also ordered a crosscut driven from No. 2 main entry to No. 1 left room on the plane, and as soon as the crosscut was finished I ordered the pit boss to have a heavy curtain hung across the entry outside the crosscut, so as to force all the air traveling in the entry up through the crosscut and through the workings to the top of the plane. I also ordered all men working on the plane to use safety lamps.

October 17, 1899.—On this date I again inspected the mine known as the Cook & White mine, which is now being operated by the Colorado Fuel and Iron Company, of Denver, Colo. I measured 39,840 cubic feet of air entering the mine per minute. I then inspected the main hauling slope and No. 3 right and left entries and the workings thereon. I took air measurements throughout the workings, which I found to be as follows:

Air traveling per minute.

	Cubic feet.
Below No. 3 right entries on slope	33,000
Bottom of slope about 15 feet from face of coal	4,840
Left return near bottom of slope	10,240
Last crosscut near face of No. 3 left entries	9,280
Return from No. 3 left main entry to No. 2 entry	12,800
Right return near bottom of slope	21,000
Face of No. 3 right main entry	5,250
Intake to No. 2 raised plane on No. 2 right entry	5,220
Intake to No. 1 raised plane on No. 3 right entry	16,575

I found a small amount of gas at No. 3 left back entry and ordered the superintendent to have the canvas brattice extended up closer to the face of said entry, so as to cause the air to circulate up to the face of the workings and sweep the gas away. The work of extending the canvas was commenced at once; otherwise I found the workings in good condition.

October 18, 1899.—On this date I inspected No. 2 right and left entries of the Cook & White and the workings thereon. I took air measurements throughout the workings, which I found to be as follows:

Air traveling per minute.

	Cubic feet.
In crosscut at face of No. 2 right entries	6,240
Intake to No. 4 raised plane on No. 2 right entry	3,600
Last crosscut between Nos. 1 and 2 left rooms on No. 4 raised plane	3,840

	Cubic feet.
Last crosscut between Nos. 2 and 3 left rooms on No. 4 raised plane	2,160
Last crosscut between Nos. 3 and 4 left rooms on No. 4 raised plane	2,100
Last crosscut between Nos. 3 and 4 right rooms on No. 4 raised plane	3,200
Face of No. 2 right room on No. 4 raised plane	1,000
Intake to No. 3 raised plane on No. 2 right entry	7,300
Bottom of No. 1 dip plane on No. 2 left entry	3,400
Return at No. 1 fan	23,100
Return at No. 3 fan	28,800
Intake on No. 1 right entry, from opening made to surface	9,200

I found the workings which I inspected well ventilated and in good condition.

October 20, 1899.—On this date I inspected the machinery belonging to the Cook & White and Lucas mines. I found the haulage rope on the Cook & White in bad condition and ordered the superintendent to furnish a new rope for the mine. The superintendent informed me that he would furnish another rope as soon as possible.

November 24, 1899.—On this day I was engaged in inspecting the machinery of the Cook & White and Lucas mines; also the safety lamps used in the Cook & White mine. I found the machinery and lamps in good condition.

November 25, 1899.—On this date I again inspected the mine known as the Cook & White. I measured 46,090 cubic feet of air entering the mine per minute. I then inspected the main slope and Nos. 3 right and left entries and the workings thereon, and took air measurements throughout the workings, which I found to be as follows:

Air traveling per minute.

	Cubic feet.
Above where air splits at bottom of slope	40,200
Left return near bottom of slope	15,600
Right return near bottom of slope	16,960
Crosscut at face of No. 3 left entries	4,680
Face of No. 3 right entry	11,160
Return from No. 3 right main entry to No. 2 right entries	20,500
Return air at No. 1 fan on left side of slope	20,520

I found the workings which I inspected in good condition and found the workings clear of gas. Since my previous visit to this mine a first-class air course, which was being driven from the second left entries to the third left entries, has been completed, and I found the ventilation very much improved throughout the workings on the left side of the slope.

November 27, 1899.—On this day I again visited the Cook & White mine and inspected the second right entries and the workings thereon, and took air measurements throughout the workings, which I found to be as follows:

Air traveling per minute.

	Cubic feet.
Face of second right entry	3,000
Last crosscut between main and back entry	8,160
Intake to No. 4 raised plane on second right entry	3,380
Crosscut between Nos. 1 and 2 left rooms on No. 4 raised plane	3,000
Crosscut between Nos. 2 and 3 left rooms on No. 4 raised plane	3,000
Crosscut between Nos. 4 and 5 right rooms on No. 4 raised plane	1,500
Crosscut between Nos. 3 and 4 right rooms on No. 4 raised plane	1,250
Crosscut between Nos. 2 and 3 right rooms on No. 4 raised plane	860
Crosscut between Nos. 1 and 2 right rooms on No. 4 raised plane	1,440
Intake to No. 3 raised plane on second right entry	4,950
Crosscut between Nos. 1 and 2 left rooms on No. 3 raised plane	1,900
Crosscut between Nos. 2 and 3 left rooms on No. 3 raised plane	1,440
Crosscut between Nos. 6 and 7 right rooms on No. 3 raised plane	1,440
Crosscut between Nos. 5 and 6 right rooms on No. 3 raised plane	600
Crosscut between Nos. 3 and 4 right rooms on No. 3 raised plane	400
Crosscut between Nos. 2 and 3 right rooms on No. 3 raised plane	600
Crosscut between Nos. 1 and 2 right rooms on No. 3 raised plane	1,920
Return at No. 3 fan	46,560

On my tour of inspection I found no gas in the workings, and found the ventilation good throughout the workings. I found some of the miners who were in need of props to timber their working places, and ordered the pit boss to have props furnished to the miners immediately, and he immediately ordered the props.

December 21, 1899.—On this date I commenced my inspection of the Cook & White mine. I measured 40,800 cubic feet of air entering the mine per minute. I then visited No. 2 right entry, and at the face of said entry I measured 500 cubic feet of air traveling per minute. I then went down to the bottom of No. 2 dip plane on No. 2 right entry and found some gas generating from the coal and ordered the canvas brattice extended up to the face of the workings. I then inspected the main hauling slope and No. 3 left entry and the workings thereon. I found the workings at the bottom of the slope, also on No. 3 left entry, well ventilated and in good condition. I then took an air measurement in the return air course at No. 1 fan, which is the outlet for the workings on the left side of the slope, and I measured 25,565 cubic feet of air traveling per minute.

December 22, 1899.—On this date I again visited the Cook & White mine and inspected the working places on No. 3 raised plane, which is driven off from No. 2 right entry. I took air measurements throughout the workings and found all rooms and working places well ventilated.

I then inspected the return air course to No. 3 fan, which is the outlet on the right of the slope, and measured 33,500 cubic feet of air traveling per minute.

January 16, 1900.—On this day I again inspected the Cook & White mine. I measured 40,800 cubic feet of air entering the mine per minute. I then inspected the main hauling slope and Nos. 3 right and left entries and the workings thereon, and took air measurements. I found the air measurements throughout the workings to be as follows:

Air traveling per minute.

	Cubic feet.
On slope below No. 3 entries	36,000
Bottom of slope	1,650
Right return near bottom of slope	15,000
Left return near bottom of slope	16,400
Return to No. 1 fan from No. 3 left main entry	13,440
Face of No. 3 right main entry	4,000
Return from No. 3 right entry to No. 2 right entry	16,425

I found the workings, which I inspected on this day, in good condition and found the ventilation good throughout the workings.

January 17, 1900.—On this date I continued my inspection of the Cook & White mine, and inspected No. 2 right entry and No. 4 raised plane, which is driven off from No. 2 right entry; also took air measurements throughout the workings and found the air measurements to be as follows:

Air traveling per minute.

	Cubic feet.
Face of second right entries in crosscut	8,100
Intake to No. 4 raised plane	6,480
Last crosscut between Nos. 1 and 2 left rooms on No. 4 raised plane	4,500
Last crosscut between Nos. 2 and 3 left rooms on No. 4 raised plane	1,200
Last crosscut between Nos. 4 and 5 right rooms on No. 4 raised plane	1,440
Last crosscut between Nos. 3 and 4 right rooms on No. 4 raised plane	3,000
Last crosscut between Nos. 1 and 2 right rooms on No. 4 raised plane	3,200
Intake to No. 3 raised plane	2,160
Return from No. 2 right entry to No. 1 right entry	10,200

I found the workings which I inspected well ventilated and in good condition.

January 18, 1900.—On this day I again visited the Cook & White mine and inspected the planes known as No. 2 dip plane and No. 3 raised plane, which are driven off from No. 2 right entry. I took air measurements throughout the workings and found the air measurements to be as follows:

Air traveling per minute.

	Cubic feet.
Intake to No. 2 dip plane	6,500
Last crosscut between Nos. 1 and 2 left rooms on plane	6,000
Last crosscut between Nos. 2 and 3 left rooms on plane	5,500
Last crosscut between Nos. 3 and 4 left rooms on plane	5,000
Last crosscut between Nos. 4 and 5 left rooms on plane	4,500
Bottom of No. 2 dip plane	1,200
Last crosscut between Nos. 5 and 6 right rooms on plane	3,200
Last crosscut between Nos. 4 and 5 right rooms on plane	3,120
Last crosscut between Nos. 3 and 4 right rooms on plane	2,820
Intake to No. 3 raised plane	4,400
Last crosscut between Nos. 1 and 2 left rooms on No. 3 raised plane	1,980

	Cubic feet.
Last crosscut between Nos. 2 and 3 left rooms on No. 3 raised plane	1,620
Last crosscut between Nos. 3 and 4 left rooms on No. 3 raised plane	1,440
Last crosscut between Nos. 4 and 5 left rooms on No. 3 raised plane	1,920
Last crosscut between Nos. 5 and 6 left rooms on No. 3 raised plane	960
Last crosscut between Nos. 7 and 8 left rooms on No. 3 raised plane	480
Last crosscut between Nos. 7 and 8 right rooms on No. 3 raised plane	360
Last crosscut between Nos. 5 and 6 right rooms on No. 3 raised plane	540
Last crosscut between Nos. 4 and 5 right rooms on No. 3 raised plane	1,000
Last crosscut between Nos. 3 and 4 right rooms on No. 3 raised plane	1,800
Last crosscut between Nos. 2 and 3 right rooms on No. 3 raised plane	2,880
Return air at No. 3 fan	26,400
Total return at Nos. 1 and 3 fans	42,825

I found the crosscuts which were driven between Nos. 6 and 7 left rooms and 7 and 8 left rooms in very bad condition, they being partially filled with falls of rock, and I ordered the superintendent, also the pit boss, to have the crosscuts cleared of all falls of rock and to keep all crosscuts in good condition.

January 19, 1900.—On this date I was engaged in inspecting the machinery belonging to the Cook & White and Lucas mines. I found the machinery belonging to the Cook & White mine in good condition, but found the main haulage rope on the Lucas mine in bad condition, and when I made mention of it to the superintendent he informed me that he had already ordered a new rope for the mine and would have it put in place of the old rope just as soon as it arrived.

February 23, 1900.—On this date I was engaged in inspecting the machinery belonging to the Cook & White and Lucas mines. I found that a new haulage rope had been put on the Lucas mine to replace the old one, and I found all the machinery in good condition.

February 24, 1900.—On this date I commenced my inspection of the Cook & White mine. I measured 38,400 cubic feet of air entering the mine per minute. I then inspected the workings at the bottom of the slope and Nos. 3 right and left entries and the workings thereon. I found the air measurements to be as follows:

Air traveling per minute.

	Cubic feet.
Right return near bottom of slope	7,500
Left return near bottom of slope	13,500
On slope below No. 3 entries	23,200
Face of No. 3 right entry	1,560
Return from No. 3 right entry to No. 2 right entry	6,600
Return from No. 3 left entry to No. 1 fan	14,400

I found the workings which I inspected well ventilated and in good condition.

February 26, 1900.—On this day I again visited the Cook & White mine and inspected No. 2 right entry and the workings thereon. I measured 12,960 cubic feet of air traveling per minute in the main entry. I then inspected the workings of Nos. 3 and 4 raised plane, which are driven off from No. 2 main right entry. I found the workings on No. 4 raised plane in good condition. On No. 3 raised plane I found some gas (fire damp) in No. 4 left room, where the pillars were being drawn, and ordered canvas brattice extended from the air course up to the face of the room, so as to force a larger volume of air up to the place where the gas appeared to be generating and clear the gas away. I also ordered the pit boss to allow no naked lights used in the room and to use due precaution and see that the miners working in that place were furnished with locked safety lamps, and to allow no powder used in said mentioned room. Otherwise I found the mine in good condition.

March 17, 1900.—On this date I commenced my inspection of the Cook & White mine. I measured 35,040 cubic feet of air entering the mine per minute. I then went down to the bottom of the slope and inspected Nos. 3 right and left entries, and took air measurements, which I found to be as follows:

Air traveling per minute.

	Cubic feet.
Near bottom of slope where air splits	31,200
Right return near bottom of slope	17,600
Left return near bottom of slope	14,400
Air traveling at bottom of slope	1,920
Return from No. 3 left entry to No. 1 fan	16,850
Face of No. 3 right entry	6,000

I found the workings which I inspected well ventilated and in good condition.

March 19, 1900.—On this date I again visited the Cook & White mine and inspected No. 2 right entry; also Nos. 3 and 4 raised planes and No. 2 dip plane and the workings thereon. I also took air measurements throughout the workings, which I found to be as follows:

Air traveling per minute.

	Cubic feet.
Face of No. 2 right main entry	9,900
Intake to No. 4 raised plane	8,100
Last crosscut between Nos. 1 and 2 right rooms on No. 4 raised plane	800
Last crosscut between Nos. 2 and 3 right rooms on No. 4 raised plane	1,200
Last crosscut between Nos. 3 and 4 right rooms on No. 4 raised plane	1,500
Last crosscut between Nos. 4 and 5 right rooms on No. 4 raised plane	1,430
Last crosscut between Nos. 5 and 6 right rooms on No. 4 raised plane	1,800
Last crosscut between Nos. 5 and 6 left rooms on No. 4 raised plane	1,600
Last crosscut between Nos. 4 and 5 left rooms on No. 4 raised plane	1,650
Last crosscut between Nos. 1 and 2 left rooms on No. 4 raised plane	1,400
Intake to No. 3 raised plane	7,930
Last crosscut between Nos. 1 and 2 right rooms on No. 3 raised plane	1,750
Last crosscut between Nos. 3 and 4 right rooms on No. 3 raised plane	1,950
Last crosscut between Nos. 6 and 7 right rooms on No. 3 raised plane	1,980
Last crosscut between Nos. 6 and 7 left rooms on No. 3 raised plane	2,450
Intake at top of No. 3 raised plane	3,600
Intake to No. 2 dip plane	6,960
Return from No. 2 right entry to No. 1 right entry	15,800

I found the ventilation good throughout the workings of the mine, but found some of the miners using props which I considered too small in diameter and ordered the pit boss to furnish the miners with larger-sized props.

March 20, 1900.—On this day I inspected the main air course of the Cook & White mine, which is the return air way from the second right main entry up to No. 1 entry, thence along the first right entry and up to No. 3 fan. I found the air course between No. 2 right main entry and No. 1 right entry in bad condition and ordered the superintendent to have the air course enlarged and to have it well timbered.

The work of enlarging the air course was commenced at once, and the superintendent informed me that he would have the work continued until the air course was in first-class condition.

March 22, 1900.—On this day I was engaged in inspecting the fans belonging to the Cook & White mine. I found the fans in good condition.

April 28, 1900.—On this date I arrived at Madrid, where the Cook & White mine is located. Upon my arrival at Madrid I was informed by the superintendent, H. J. Elliott, that the mine had been closed down since April 13, and that he could not tell when work would be commenced again. I then ordered the superintendent to keep the fans running and to keep the air courses in good condition; also to have the mines thoroughly examined for gas before commencing operations again, and the superintendent informed me that he would comply with my request.

May 17, 1900.—On this date I commenced my inspection of the Cook & White mine. I measured 29,760 cubic feet of air entering the mine per minute. I then inspected No. 2 right entry and took air measurements at the face of the entry, also in the intakes to Nos. 3 and 4 raised planes, and found the air measurements to be as follows:

Air traveling per minute.

	Cubic feet.
Below second right entry on slope	28,120
Face of No. 2 right entry	6,160
Intake to No. 3 raised plane	6,480
Intake to No. 4 raised plane	9,415

I found the ventilation splendid throughout the workings. I also made a careful inspection for gas, but found none throughout the workings which I inspected.

May 18, 1900.—On this date I again visited the Cook & White mine. I inspected all of the workings at and around the bottom of the slope, also all workings on Nos. 3 right and left entries, and took air measurements throughout the workings, which I found to be as follows:

Air traveling per minute.

	Cubic feet.
Above where air splits near bottom of slope	25,800
Bottom of slope	1,200
Right return near bottom of slope	8,800

	Cubic feet.
Left return near bottom of slope	12,000
In crosscut at face of No. 3 left entry	2,000
Return from No. 3 left entry to No. 1 fan	14,350
Face of No. 3 right entry	7,800
Return from No. 3 right entry to No. 2 right entry	8,640

I found the workings well ventilated, clear of gas, and in good condition.

May 19, 1900.—On this day I again visited the Cook & White mine and inspected the workings on No. 3 raised plane, which is driven off from No. 2 right entry. I took air measurements throughout the workings which I found to be as follows:

Air traveling per minute.

	Cubic feet.
In crosscut between Nos. 1 and 2 right rooms on No. 3 plane	8, 250
In crosscut between Nos. 3 and 4 right rooms on No. 3 plane	7, 800
In crosscut between Nos. 4 and 5 right rooms on No. 3 plane	7, 200
In crosscut between Nos. 1 and 2 left rooms on No. 3 plane	7, 050
In crosscut between Nos. 3 and 4 left rooms on No. 3 plane	6, 900
In crosscut between Nos. 4 and 5 left rooms on No. 3 plane	6, 750

I found the workings on the plane well ventilated, but I found some of the rooms which required timbering and ordered the pit boss to have the rooms timbered. He informed me that he would have the work commenced at once. I then inspected the main air course leading from No. 2 entry up to No. 3 fan and found the air course in good condition. At No. 3 fan, which is the return from all workings on the right of the slope, I measured 26,400 cubic feet of air returning per minute. The force of men in this mine was to be increased considerably, and I instructed the superintendent, also the pit boss, to have every place where men were being put to work thoroughly examined by a competent fire boss before any persons were allowed to work therein. The superintendent and pit boss assured me that they would comply with my request and would use every precaution to avoid accidents happening in the mine.

June 22, 1900.—On this date I commenced my inspection of the Cook & White mine. I measured 39,266 cubic feet of air entering the mine per minute. I then inspected No. 2 right entry and the workings thereon, consisting of No. 1 dip plane and Nos. 3 and 4 raised planes. I found the workings well ventilated and found no gas in the workings which I inspected.

June 23, 1900.—On this day I continued my inspection of the Cook & White mine, and inspected Nos. 3 right and left entries and the workings thereon; also, the workings at the bottom of the slope. I found the air measurements to be as follows:

Air traveling per minute.

	Cubic feet.
Bottom of slope	2, 125
Right return near bottom of slope	5, 750
Left return near bottom of slope	9, 000
Return from No. 3 left entry to No. 1 fan	14, 175
Return from No. 3 right entry to No. 3 fan	13, 860

I found the workings well ventilated, clear of gas, and in good condition.

LUCAS MINE.

[John T. Kebler, general superintendent; H. J. Elliott, superintendent at mines.]

This mine is located 3 miles south of the town of Los Cerrillos, Santa Fe County, N. Mex., and was operated by the Cerrillos Railroad Company until October 6, 1899, at which time it passed into the hands of the Colorado Fuel and Iron Company, of Denver, Colo., and is being operated under lease by this company from the Cerrillos Railroad Company, which latter company, as I am informed, is the owner of the property. This mine is located on a branch of the Atchison, Topeka and Santa Fe Railroad, which connects with the main line of the road at Waldo Station. The town of Madrid is situated at the terminus of this branch.

This mine is ventilated by a double 6-foot Murphy fan, which is located on the north side of the main slope. The air current traveling on the south side of the mine crosses the slope, and thus reaches the fan through what is known as the overcast or air-tight wooden box, built over the top of the slope and crossing it at right angles. Kind of coal, anthracite; thickness of vein, 2 feet 8 inches; total output for fiscal year, 41,595 tons; estimated value of output, $114,385; value of improvements this year, $1,200; depth of slope, 2,251 feet; average number of men employed outside, 21; average number of men employed inside, 50; average number of boys employed outside, 23 (slate pickers); average number of boys employed inside, 3; where coal is marketed, Arizona, California, Kansas, Texas, New Mexico, and Colorado; number of days mine worked, 248; number of tons of coal used at mine (slack), 3,850.

RECORD OF INSPECTION.

September 5, 1899.—On this date I was engaged in inspecting the mine known as the Lucas mine. I measured 12,480 cubic feet of air entering the mine per minute and measured 12,800 cubic feet of air returning per minute. I then went down into the mine and took an air measurement on the main slope below the fourth right entry and found only 2,400 cubic feet of air traveling per minute. I then made a thorough examination of the slope and found considerable air escaping through the door on the first right entry, also through the door on the second right entry, and ordered the superintendent to have said mentioned places repaired and made air-tight so that a larger volume of air could be forced down to the bottom of the slope. The superintendent had the work commenced at once. I then visited No. 1 dip plane on the fourth right entry and found 6,300 cubic feet of air entering the plane per minute. At the bottom of the plane I measured 3,000 cubic feet of air traveling per minute.

September 6, 1899.—I again visited the Lucas mine for the purpose of ascertaining if my order of the 5th instant had been complied with. I found the doors on Nos. 1 and 2 right entries had been repaired. I then took an air measurement below the fourth right entry and found 4,500 cubic feet of air traveling per minute, which was an increase of 2,100 cubic feet over the amount which I found traveling on the 5th instant. I then inspected Nos. 1 and 2 right entries and the workings thereon and found the workings in good condition.

October 19, 1899.—On this day I again inspected the mine known as the Lucas mine. I measured 15,260 cubic feet of air entering the mine per minute and measured 16,560 cubic feet of air returning per minute. I found the workings of the mine well ventilated and in good condition.

November 28, 1899.—On this day I again inspected the mine known as the Lucas mine. I measured 14,400 cubic feet of air entering the mine per minute and measured 15,360 cubic feet of air returning per minute. I then inspected the workings on No. 4 right entries and took air measurements throughout the workings, which I found to be as follows:

Air traveling per minute.

	Cubic feet.
Between Nos. 4 and 5 left rooms on No. 1 dip plane	2,250
Between Nos. 5 and 6 left rooms on No. 1 dip plane	2,560
Between Nos. 1 and 2 left rooms on No. 1 dip plane	4,800
Between Nos. 2 and 3 left rooms on No. 2 dip plane	1,200
Between Nos. 3 and 4 left rooms on No. 2 dip plane	1,400

I found the workings well ventilated and in good condition.

November 29, 1899.—On this date I again visited the Lucas mine and inspected the second right entries and Nos. 1 and 2 dip planes and the working places thereon. I found the workings which I inspected in good condition.

January 20, 1900.—On this day I again inspected the mine known as the Lucas mine. The fan was running 160 revolutions per minute, and I measured 14,400 cubic feet of air entering the mine per minute and measured 15,120 cubic feet of air returning per minute. I then inspected the workings of the mine and took air measurements, which I found to be as follows:

Air traveling per minute.

	Cubic feet.
On slope below No. 4 right entry	5,280
Last crosscut at face of No. 4 right entries	1,710
Intake to No. 1 dip plane on No. 4 right entry	7,530
Last crosscut between Nos. 1 and 2 left rooms on plane	4,600
Last crosscut between Nos. 2 and 3 left rooms on plane	4,250
Last crosscut between Nos. 3 and 4 left rooms on plane	4,160
Last crosscut between Nos. 4 and 5 left rooms on plane	3,960
Last crosscut between Nos. 5 and 6 left rooms on plane	3,580
Bottom of plane	1,080
Last crosscut between Nos. 4 and 5 right rooms on plane	1,400
Last crosscut between Nos. 5 and 6 right rooms on plane	1,500

	Cubic feet.
Last crosscut between Nos. 4 and 5 left rooms on No. 2 dip plane	1,400
Last crosscut between Nos. 5 and 6 left rooms on No. 2 dip plane	1,500
Return from No. 4 right entry to No. 2 right entry	7,650
Air traveling on No. 2 right entry	8,400

I found that the air was not traveling at the bottom of No. 2 dip plane on the fourth right entry, and I ordered the superintendent, Mr. H. J. Elliott, to have an air course driven from No. 4 right entry out to the surface. He informed me that he would commence the work at once.

January 22, 1900.—On this date the superintendent and myself visited the Lucas mine for the purpose of deciding on a place to drive an opening for an air course from No. 4 right entry out to the surface, and after looking over the different workings in the mine, we decided on extending No. 2 raised plane on the fourth right entry out to the surface, and when the work is completed the ventilation throughout the workings of the mine should be very much improved.

February 27, 1900.—On this date I visited the mine known as the Lucas mine for the purpose of ascertaining if the new air course was being driven out to the surface according to my order of January 20. I found that in driving the air course the air could not be forced up to the face of the workings and work was stopped on the air course that day, but a small fan was being placed in the air course, and as soon as the fan was in position, the work of driving the air course would be resumed.

March 21, 1900.—On this date I was engaged in inspecting the mine known as the Lucas mine. The fan was running 140 revolutions per minute, and I measured 13,260 cubic feet of air entering the mine per minute and measured 13,800 cubic feet of air returning per minute. I then inspected the underground workings of the mine and took air measurements throughout the workings, which I found to be as follows:

Air traveling per minute.

	Cubic feet.
On slope above No. 3 entries	7,020
On slope below No. 4 entries	4,950
Bottom of slope	600
Last crosscut between No. 6 main and back entry	2,250
Last crosscut between Nos. 4 and 5 left rooms on No. 1 dip plane	2,000
Air traveling on No. 1 right entry	12,522

March 22, 1900.—On this day I was engaged in inspecting the machinery belonging to the Lucas mine. I found the engine which runs the fan on the Lucas mine in bad condition and ordered the superintendent to have the master mechanic repair the engine and put it in first-class condition. The superintendent informed me that he would have the work of repairing the engine attended to as soon as possible.

I discovered a small feeder of gas (fire damp) down at the bottom of the slope and ordered the pit boss to have the workings thoroughly examined for gas every morning before any of the miners entered the mine. The pit boss informed me that he had employed a very competent man as fire boss and his business was to look after the ventilation and see that there was no standing gas in the mine. Since my previous visit to this mine a new air course had been driven a distance of 85 feet, and the work of driving the air course was being continued as speedily as two shifts could drive it.

June 25, 1900.—On this date I again inspected the mine known as the Lucas mine. The fan was running 120 revolutions per minute and I measured 10,080 cubic feet of air entering the mine per minute and measured 10,150 cubic feet of air returning per minute. I then inspected Nos. 4, 6, and 7 right entries and the workings thereon. I found the workings ventilated in compliance with the law and found the workings well timbered and in good condition.

The breaker, being a large building 250 feet long, 60 feet wide, and 110 feet high, and containing the machinery for crushing and assorting the coal, is located at the mouth of this mine, its top being almost on a level with the mine. The coal as it is hoisted from the mine in pit cars is dumped into the breaker, where it is crushed and graded into sizes known as "grate," "egg," "stove," "nut," and "pea." After being crushed and graded it is stored in storage bins which hold 75 tons each of the respective grades, and from these bins the coal is loaded on the railroad cars and shipped to the different points above mentioned. Compressed-air power is used in running the pumps in the mine. The mine is equipped with electrical bell signals throughout.

OMARA MINE.

[W. P. Gould, lessee.]

This mine is located about 7 miles south of Ortiz Station, which is a station on the Atchison, Topeka and Santa Fe Railroad, in Santa Fe County, N. Mex. Said mine is owned by Frederick Muller and is operated by W. P. Gould as lessee. Kind of coal, bituminous; thickness of vein, 4 feet 6 inches; total output for fiscal year, 1,500 tons; estimated value of output, $3,000; depth of slope, 400 feet; value of improvements this year, $200; average number of men employed outside, 2; average number of men employed inside, 3; where coal is marketed, sold to local trade; number of days mine worked, 200.

Owing to the few men employed in this mine, I did not visit the mine during the fiscal year ended June 30, 1900.

COLFAX COUNTY.

BLOSSBURG MINES.

[Frank Springer, president; J. Van Houten, vice-president; J. A. Wiggs, superintendent; M. M. Walsh, assistant superintendent.]

These mines are located near the town of Gardiner, Colfax County, N. Mex., and about 4½ miles in a westerly direction from the town of Raton, N. Mex., where the general offices of the company are located. The mines are owned and operated by the Raton Coal and Coke Company. The Blossburg mines being operated this year are the mines known as Nos. 4, 6, 8, and 9 mines, all of which are located on the same vein of coal, and the total production for the fiscal year from all the company's mines was 391,618 tons.

Blossburg mines Nos. 4 and 6.—Kind of coal, bituminous; thickness of vein, 6 to 7 feet; estimated value of output, not reported; length of drift, 2,900 feet; value of improvements this year, $20,000; average number of men employed outside, 20; average number of men employed inside, 300; average number of boys employed outside, 3; average number of boys employed inside, 10; where coal is marketed, New Mexico, Arizona, and Mexico; number of days mines worked, 313.

RECORD OF INSPECTION.

September 9, 1899.—On this date I inspected Nos. 1, 2, 3, and 4 left entries on the Blossburg mine No. 4. I measured 5,400 cubic feet of air traveling per minute through the last crosscut on Nos. 1 and 2 left entries and measured 15,180 cubic feet of air traveling through the last crosscut on Nos. 3 and 4 left entries. I found the workings which I inspected in good condition.

September 8, 1899.—On this date I inspected the main diagonal entries and Nos. 6, 7, 8, 9, 10, 11, and 12 right entries; also Nos. 1 and 13 left entries of the Blossburg mine No. 4, and took air measurements throughout the workings. I found the workings well ventilated and in good condition. On this day I also inspected the machinery belonging to the mine and found the machinery in good condition.

September 11, 1899.—On this date I inspected the working of No. 6 mine. I measured 28,350 cubic feet of air entering the mine through No. 6 opening. I then inspected Nos. 1 and 2 left entries and the workings thereon. I measured 6,000 cubic feet of air traveling per minute through the last crosscut near the face of the entries. I then inspected the entries known as the main and back entries and the workings thereon. I measured 5,400 cubic feet of air traveling per minute through the last crosscut near the face of the entries. I found the workings which I inspected in good condition and well ventilated.

November 16, 1899.—On this date I again inspected the mine known as the Blossburg mine No. 6. The fan was running 60 revolutions per minute and I measured 9,600 cubic feet of air entering the mine per minute. I then inspected the workings of the mine and found the workings in fair condition.

November 17, 1899.—On this day I again inspected the mine known as the Blossburg mine No. 4. I measured 19,680 cubic feet of air entering the mine per minute. I then inspected the workings of the mine and found the workings in good condition.

Nos. 4 and 6 mines are all one and the same vein of coal and have one return-air course, and in the return-air course I measured 30,000 cubic feet of air returning per minute. I ordered the pit boss to keep a plenty of props and mining timbers on hand for the use of the miners.

October 23, 1899.—On this date I inspected the Blossburg mines Nos. 4 and 6. The fan was running 60 revolutions per minute, and I measured 16,320 cubic feet of air entering No. 4 mine per minute, and measured 15,705 cubic feet of air entering No. 6 mine per minute. I then took air measurements in No. 6 mine and on Nos. 1, 2, 3, and 4 left entries on No. 4 mine. I found the workings which I inspected well ventilated, but found the roof of No. 3 room on the first left entry in a very dangerous condition, and had work suspended in said room until it was properly timbered. I also found a very dangerous place in the roof of the first left entry, and ordered the pit boss to have the loose rock taken down and to timber the place with good, heavy timbers. The pit boss called the timberman and instructed him to commence the work at once.

October 24, 1899.—On this date I was engaged in inspecting Nos. 1, 7, 8, 9, 10, and 11 right entries on No. 4 mine. On the above-mentioned entries the only work being done was drawing the pillars, and I measured 10,800 cubic feet of air traveling per minute around the face of the pillars. I found the working places well timbered and in good condition.

December 18, 1899.—On this day I commenced my inspection of the Blossburg mines Nos. 4 and 6. I measured 47,310 cubic feet of air entering Nos. 4 and 6 mines, and measured 49,560 cubic feet of air returning per minute. I then inspected Nos. 1 and 2 left entries of No. 6 mine, and Nos. 1, 2, 3, and 4 left entries on No. 4 mine and the workings thereon.

I found the workings of said mentioned entries well ventilated and in good condition.

December 19, 1899.—I continued my inspection of the Blossburg mine No. 4. I inspected all of the old workings in the mine and all places where the pillars were being drawn. I found the workings clear of gas, and found the working places well timbered and in good condition.

January 24, 1900.—On this date I again inspected the mine known as the Blossburg mine No. 6, and I measured 12,240 cubic feet of air entering the mine per minute. I then inspected all of the rooms and places which were being worked and found the ventilation good throughout the workings. I found some of the rooms which I examined in a dangerous condition on account of not being properly timbered, and ordered the miners to timber their rooms before mining any more coal. I also ordered the pit boss to keep the miners well supplied with plenty of timbers and props, and to make it the duty of the miners to timber their working places as work progressed, so as to avoid accidents happening in the mine.

January 25, 1900.—On this date I again inspected the mine known as the Blossburg mine No. 4. I measured 13,440 cubic feet of air entering the mine per minute. I then inspected Nos. 1, 2, 3, and 4 left entries; also Nos. 7, 8, 9, 10, 11, 12, 13, and 14 right entries and the workings thereon. I found the ventilation good throughout the workings and found all the places well timbered and in good condition.

February 19, 1900.—On this day I again inspected the mine known as the Blossburg mine No. 4. I measured 14,840 cubic feet of air entering the mine per minute. I then inspected Nos. 8, 9, 10, 11, 12, 13, and 14 right entries; also the entry known as the Blossburg main and No. 13 left entries. On all the above-mentioned entries the pillars were being drawn, and I ordered the miners to keep their working places well timbered and secure from all dangerous conditions. I found all the workings in fair condition.

February 20, 1900.—On this day I again inspected the mine known as the Blossburg mine No. 6. I measured 17,880 cubic feet of air entering the mine per minute, and in the return-air course of Nos. 4 and 6 mines I measured 33,000 cubic feet of air returning per minute. I then inspected all the workings in the mine and found them well ventilated and in good condition.

March 24, 1900.—On this date I again inspected the mine known as the Blossburg mine No. 6. The fan was running 60 revolutions per minute, and I measured 19,140 cubic feet of air entering the mine per minute. I then inspected all the underground workings, and took air measurements which I found to be as follows:

Air traveling per minute.

	Cubic feet.
Face of No. 1 entry	8,400
Face of No. 2 entry	6,600
Air traveling in Nos. 3 and 4 left entries	6,000

I found the workings of the mine well ventilated and in good condition.

March 25, 1900.—On this date (Sunday) at 12 m. I was notified by J. A. Wiggs, superintendent, that a man had been killed in the mine. (See fatal accident report of this date, under the head of Fatal Accident Reports.)

March 26, 1900.—On this date I again inspected the mine known as the Blossburg mine No. 4. I measured 15,605 cubic feet of air entering the mine per minute. I then inspected all the working places in the mine and found several places where the pillars were being drawn that required timbering, and ordered the miners to keep their working places well timbered, and as all work being done in No. 4 mine is drawing pillars, I ordered the assistant superintendent to put an extra man in charge of No. 4 mine, and to make it his duty to examine every working place in the mine every day, and see that plenty of props and timbers were furnished to the miners; also to see that the miners kept their places well timbered. The assistant superintendent informed me that he would employ a competent man for the position at once.

April 19, 1900.—On this date I again inspected the mine known as the Blossburg mine No. 4. I measured 15,120 cubic feet of air entering the mine per minute. I then inspected all of the underground workings and found several places that required timbering, and ordered the assistant superintendent to have the places timbered. He informed me that he would have the timbermen to commence work at once.

April 20, 1900.—On this date I again inspected the mine known as Blossburg mine No. 6. I measured 10,280 cubic feet of air entering the mine per minute. I then inspected the workings of the mine and found the workings well ventilated, but I found Nos. 6 and 12 rooms on No. 2 entry being worked without being properly timbered. I ordered the miners to stop working in said rooms until such time as they were timbered and made perfectly secure from all danger.

May 22, 1900.—On this day I again inspected the mine known as the Blossburg mine No. 4. I measured 4,800 cubic feet of air entering the mine per minute. I then examined every working place in the mine and found two places which were in a dangerous condition, and ordered the miners to stop work and timber their places before they did any more mining.

May 23, 1900.—On this date I again inspected the mine known as the Blossburg mine No. 6. I measured 14,900 cubic feet of air entering the mine per minute. I then inspected all the underground workings of the mine. I found No. 3 room on No. 18 entry in a dangerous condition and ordered the miners to stop work in said mentioned room. I then inspected the main return-air course for Nos. 4 and 6 mines and found the air course in good condition. After finishing my inspection of the underground workings, I inspected the fan and found that it was running only 43 revolutions per minute, its regular speed being 60 revolutions per minute, and I ordered the superintendent to have the fan speeded up to 60 revolutions per minute. The superintendent informed me that he would have the fan stopped on Sunday, the 27th, when all men would be out of the mines, and would have the master mechanic regulate the speed of the fan so as to keep it running at 60 revolutions per minute.

June 26, 1900.—On this date I again inspected the mine known as the Blossburg mine No. 4. I measured 14,580 cubic feet of air entering the mine per minute. I then inspected all the underground workings of the mine. I found the workings well ventilated and in good condition.

June 27, 1900.—On this date I again inspected the mine known as the Blossburg mine No. 6. I measured 24,300 cubic feet of air entering the mine per minute. I then inspected all the underground workings of the mine; found the workings well ventilated and in good condition.

Blossburg mine No. 8.—This is a new mine opened this year on the same vein of coal as Nos. 4 and 6 mines, and is owned and operated by the same company. Work was commenced on this mine December 1, 1899. Kind of coal, bituminous; thickness of vein, 4½ to 5 feet; length of drift, 1,400 feet; value of improvements this year, $5,000; average number of men employed outside, 10; average number of men employed inside, 100; average number of boys employed outside, 2; average number of boys employed inside, 2; where coal is marketed, Atchison, Topeka and Santa Fe Railroad, Mexican Central Railway, and Southern Pacific Railway; number of days mine worked, 180.

RECORD OF INSPECTION.

January 26, 1900.—On this day I visited and inspected the mine known as Blossburg mine No. 8. At the time of my visit to the mine, the work being done consisted of six entries being driven in on the vein of coal. Nos. 1, 2, 3, and 4 entries were driven a distance of 300 feet each, and Nos. 5 and 6 were driven a distance of 90 feet each.

On account of the few men working in the mine I did not take air measurements, but I found the workings of the mine in good condition.

February 21, 1900.—On this date I again inspected the mine known as the Blossburg mine No. 8. I measured 9,580 cubic feet of air entering the mine per minute and measured 9,600 cubic feet of air returning per minute. I then inspected all the underground workings of the mine and found the workings well ventilated and in good condition.

March 27, 1900.—On this date I again inspected the mine known as the Blossburg mine No. 8. I measured 3,450 cubic feet of air entering the mine by way of No. 1 intake and measured 4,500 cubic feet of air entering by way of No. 2 intake, and measured 8,230 cubic feet of air returning per minute. I inspected all working places in the mine and found them well ventilated, but I found No. 4 and No. 5 right rooms on No. 1 entry very much in need of being timbered, and ordered the miners working in the rooms to timber their rooms up in good shape before mining any more coal. With the exception of the condition of the above-mentioned rooms I found the mine in good condition.

April 21, 1900.—On this date I again inspected the Blossburg mine No. 8. I measured 11,200 cubic feet of air entering the mine per minute and measured 11,520 cubic feet of air returning per minute. I found the miners working too far in advance of the air in Nos. 1, 2, and 3 left rooms on No. 2 entry, and ordered crosscuts driven at the face of said-mentioned rooms. The work of driving the crosscuts was commenced immediately.

May 24, 1900.—On this date I again visited and inspected the mine known as the Blossburg mine No. 8. On this date the mine was not being operated on account of the motor track which leads from the mine to the tipple being in bad condition. I inspected the underground workings of the mine and found them in fair condition.

Blossburg mine No. 9.—This is a new mine opened this year on the same vein of coal as Nos. 4 and 6 mines, and is owned and operated by the same company. Work commenced on this mine on the 1st day of February, 1900. This mine receives its power by electric current from the power house at Gardiner, N. Mex., and most of the mining is done by Morgan-Gardiner electric mining machines. Kind of coal, bituminous; thickness of vein, 4½ feet; length of drift, 600 feet; average number of men employed outside, 8; average number of men employed inside, 40; average number of boys employed outside, 1; average number of boys employed inside, 2; where coal is marketed, Atchison, Topeka and Santa Fe Railroad, Mexican Central Railway, and Southern Pacific Railway; number of days mine worked, 128.

RECORD OF INSPECTION.

June 28, 1900.—On this day I inspected the mine known as the Blossburg mine No. 9. I measured 10,800 cubic feet of air entering the mine per minute. I then inspected the underground workings of the mine and found them in good condition.

All mines owned by the Raton Coal and Coke Company are operated by electricity from one power house, consisting of 6 boilers, aggregating 700 horsepower, furnishing steam to 535-horsepower Card electric generators, being driven by Erie & Skinner automatic engines. Power is transmitted to the mines, 7,500 feet away, through 6 wires, bare copper, 4/0 diameter, furnishing power for electric mining machines. The fans are all driven by electric motors at all mines. Also power is furnished to 4 electric locomotives which are used for hauling coal from the partings in the mines to the tipple. The tipple consists of one structural steel tipple, the platform being 80 feet above the railroad. The coal is dumped into a long chute which is kept filled with coal. At the lower end of the chute the coal is let out into the railroad cars by a steam gate controlled by the car weighman at the bottom. The coal being dumped at the top on an improved Mitchell tipple and the empty cars going to empty tracks by gravity makes it possible to handle the large output of coal economically. This is the only steel tipple in the Territory. The company also has a coal-washing plant, which consists of one 400-ton capacity Robinson-style coal washer, and the buildings are of steel throughout. The washer and tipple cost the sum of $20,000, and were erected this year. The company also has 76 coke ovens of the bee-hive type, each of them being 13 feet in diameter, the charging capacity being 6½ tons to each of them every forty-eight hours.

Mines Nos. 8 and 9 are drift mines, and the coal is dumped into the railroad cars by inclined planes, which run down the side of the mountain and work by gravity.

These mines show an increased production of 83,302 tons. The estimated value of the total production is $500,000. The total number of tons of coal used at the power plant was 5,786 tons. The Blossburg mines, taken together, are the largest producers in the Territory, having a capacity of 2,000 tons per day. They are located on a branch of the Atchison, Topeka and Santa Fe Railroad, connecting with the main line at Dillon station, and the coal fields of the Raton Coal and Coke Company in this county contain 10,000 acres, on which there are several seams of coal. At present, however, only one seam of coal is being worked. The mines are dry and comparatively free from gas.

DAVIS CAÑON MINE.

[Albert J. Shaw, general manager.]

This mine is located about 1 mile west of the town of Raton, Colfax County, N. Mex. Owned by the Maxwell Land Grant Company and is operated under lease by Albert J. Shaw. This is a new mine opened this year. Kind of coal, bituminous; thickness of vein, 3 feet 8 inches; total output for fiscal year, 5,098 tons; estimated value of output, $10,000; length of drift, 540 feet; value of improvements this year, $5,000; average number of men employed outside, 8; average number of men employed inside, 8; where coal is marketed, Raton, N. Mex.; number of days mine worked, 240.

RECORD OF INSPECTION.

October 26, 1899.—On this date I visited and inspected the mine known as the Davis Cañon mine. At the time of my visit to the mine a drift had been driven in on the vein of coal a distance of 165 feet, and I found the workings in good condition.

January 27, 1900.—On this date I again inspected the mine known as the Davis Cañon mine. I measured 1,400 cubic feet of air entering the mine per minute and measured 1,505 cubic feet of air returning per minute. I then inspected the underground workings of the mine and found the workings well timbered and in good condition.

March 28, 1900.—On this date I again inspected the mine known as the Davis Cañon mine. I measured 2,250 cubic feet of air entering the mine per minute and measured 2,520 cubic feet of air returning per minute. I found No. 2 left room in a dangerous condition on account of not being properly timbered, and ordered the pit boss to have the room timbered before any more mining was allowed to be done in said room. The pit boss informed me that he would see that the room was properly timbered before any more mining was done in said room.

May 25, 1900.—On this date I again inspected the mine known as the Davis Cañon mine. I measured 2,660 cubic feet of air entering the mine per minute and measured 3,812½ cubic feet of air returning per minute. I found the workings of the mine in good condition.

MESA MINE.

[Honeyfield Brothers, operators.]

This mine is located about 7 miles east of the town of Raton, Colfax County, N. Mex. Kind of coal, bituminous; thickness of vein, 5 feet; total output for fiscal year (estimated), 300 tons; estimated value of output, $325; average number of men employed at mine, 5; length of drift, 400 feet; where coal is marketed, Raton, N. Mex.

RECORD OF INSPECTION.

October 27, 1899.—On this date I inspected the mine known as the Mesa mine. I found No. 1 room in a very dangerous condition, and ordered said room timbered before any more mining was done.

This mine closed down soon after the date of the above inspection, and I did not again inspect it during the fiscal year.

DAWSON MINE.

[J. B. Dawson, owner and manager.]

This mine is situated about 15 miles in a westerly direction from the town known as Maxwell City, Colfax County, N. Mex. This is a new mine, which has been worked in a small way during the last fiscal year. Kind of coal, bituminous; thickness of vein, 9 feet; total output for fiscal year, 300 tons; estimated value of output, $450; length of drift, 300 feet; number of men employed in mine, 2; where coal is marketed, Springer, Colfax County, N. Mex., and vicinity; number of days mine worked, 60.

RECORD OF INSPECTION.

November 21, 1899.—On this date I visited and inspected the mine known as the Dawson mine, in response to a request from J. B. Dawson, owner and manager of the mine, to visit the mine. I found two entries driven in on the vein of coal a distance of 130 feet each. I found the workings well timbered and in good condition.

I then instructed Mr. Dawson as to how the mine should be worked in order to comply with the mining laws, and explained to him about the necessity of having a second opening made for an outlet, according to the provisions of the fifth section of the United States Mining Laws. Mr. Dawson informed me that he would have a second opening driven as soon as possible. Owing to the long distance the mine is located from the railway and the few miners employed therein, I did not deem it necessary to visit the mine again during the fiscal year.

SMITH MINE NO. 2.

[Albert G. Shaw, lessee and general manager.]

This mine is located about 1 mile north of the town of Raton, Colfax County, N. Mex., and is owned by the Maxwell Land Grant Company, and is operated under lease by Albert G. Shaw. The product of this mine is hauled in wagons to the town of Raton, N. Mex., and there sold to the domestic trade. The capacity is about 20 tons per day.. The mine is ventilated by a furnace. This mine closed down December 31, 1899. From June 30 until December 31 there were produced from the mine 1,890 tons of coal, the estimated value of which is $3,780.

RECORD OF INSPECTION.

October 25, 1899.—On this date I was notified by a miner that a man by the name of Hopkin Hopkins was killed in the Smith mine No. 2 on the night of October 24. (See report under head of "Fatal accidents.") On this same date I inspected all the underground workings of the mine and found the workings well ventilated and in good condition.

November 18, 1899.—On this date I again inspected the mine known as the Smith mine No. 2. I measured 1,440 cubic feet of air entering the mine per minute and measured 1,512 cubic feet of air returning per minute. I then inspected the underground workings of the mine and found the workings in good condition; and as this mine closed down on December 31 I did not inspect the mine any more during the year.

RIO ARRIBA COUNTY.

MONERO MINE NO. 1.

[J. H. Crist, general manager; E. A. Fiske, president.]

This mine is located at Monero, Rio Arriba County, N. Mex., on the Denver and Rio Grande Railroad; is owned and operated by the Rio Arriba Coal Company. Kind of coal, bituminous; thickness of vein, 3 feet 10 inches; total output for fiscal year, 22,000 tons; estimated value of output, $28,000; depth of slope, 1,700 feet; value of improvements this year, $4,000; average number of men employed outside, 7; average number of men employed inside, 18; average number of boys employed inside, 2; where coal is marketed, Denver and Rio Grande Railroad Company; number of days mine worked, 275; number of tons of coal used at mine, 800.

RECORD OF INSPECTION.

September 18, 1899.—On this date I was engaged in inspecting the mine known as the Monero mine No. 1. I measured 7,590 cubic feet of air entering the mine per minute, and measured 7,700 cubic feet of air returning per minute. I then inspected the workings on No. 1 left entry, which was the only entry being worked, and found only 600 cubic feet of air traveling per minute at the face of the entry. I found the air returning from the main intake into the old abandoned workings before reaching the face of the places being worked. I ordered the pit boss to make a thorough examination of the Craig slope, which is the intake, and to have all places along the slope where the air was escaping to the return air course before reaching the workings at the bottom of the mine closed up and made air-tight, so as to force all the air down to the face of No. 1 left entry and around the faces of all working places on said entry. The pit boss informed me that my instructions would be complied with immediately.

December 14, 1899.—On this date I again inspected the mine known as the Monero mine No. 1. I measured 10,440 cubic feet of air entering the mine per minute, and measured 10,800 cubic feet of air returning per minute. I then inspected the underground workings of the mine.

At the face of No. 1 left entry, where all work was being performed, I measured 2,240 cubic feet of air traveling per minute. I then inspected the main air course and found it partially filled with rock and ordered the pit boss to have the air course cleared of all falls of rock and to keep it in good condition.

February 14, 1900.—On this day I again inspected the mine known as Monero mine No. 1. I measured 6,800 cubic feet of air entering the mine per minute and measured 7,030 cubic feet of air returning per minute. I then inspected the underground workings of the mine, and at the face of No. 1 left entry I found only 840 cubic feet of air traveling per minute. I then inspected the air course leading to the entry and which supplies No. 1 left entry with air and found it in bad condition, and ordered the general manager to have the air course cleared of all falls of rock and put into good condition.

February 15, 1900.—I again visited Monero mine No. 1 for the purpose of ascertaining if the main air course was being put into good condition. I found men working on the air course, clearing it of all falls of rock and timbering the same. The distance vertically between No. 1 and 2 mines is about 30 feet, and a new slope is being driven from No. 1 mine to connect with No. 2 mine, and the general manager informed me that when No. 2 vein of coal was encountered with the new slope and two entries were driven a short distance on the vein of coal No. 1 mine would be abandoned.

April 25, 1900.—On this date I again inspected the mine known as the Monero mine No. 1. I measured 8,800 cubic feet of air entering the mine per minute, and measured 9,520 cubic feet of air returning per minute. I found the workings of the mine in fair condition.

MONERO MINE NO. 2.

[J. H. Crist, general manager; E. A. Fiske, president.]

This mine is located at Monero, Rio Arriba County, N. Mex., on the Denver and Rio Grande Railroad. Owned and operated by the Rio Arriba Coal Company. Kind of coal, bituminous; thickness of vein, 3 feet 10 inches; total output for fiscal year, 8,000 tons; estimated value of output, $12,000; depth of slope, 1,000 feet; value of improvements this year, $2,500; average number of men employed outside, 4; average number of men employed inside, 9; average number of boys employed inside, 2; where coal is marketed, Denver and Rio Grande Railroad Company; number of days mine worked, 260; number of tons of coal used at mine, 400.

RECORD OF INSPECTION.

September 16, 1899.—On this date I inspected the Monero mine No. 2. I measured 1,500 cubic feet of air entering the mine per minute, and measured 1,575 cubic feet of air returning per minute. I then inspected the workings along the slope and found the air returning to the return air course before reaching the workings down at the bottom of the slope. I ordered all openings along the right of the slope (except the last opening or entry) closed up and made air-tight, so as to force all the air down to the bottom of the slope and around to the face on the working places. The pit boss informed me that the work would be commenced at once.

December 15, 1899.—On this date I again inspected the mine known as the Monero mine No. 2. I measured 2,880 cubic feet of air entering the mine per minute, and measured 3,000 cubic feet of air returning per minute. I then inspected the underground workings of the mine and found the air returning to the return air course before reaching the face of the working places. I ordered the pit boss to brattice up the neck of the rooms which are driven off from the slope, so as to force the air around the face of the working places in the mine.

February 12, 1900.—On this day I again inspected the mine known as the Monero mine No. 2. I measured 4,080 cubic feet of air entering the mine per minute, and measured 4,176 cubic feet of air returning per minute. I then inspected the working places throughout the mine and found some gas (fire damp) at the face of No. 1 left room, and ordered the pit boss to have more air conducted up to the face of the room, so as to clear the room of gas. I also instructed the pit boss to examine the working places for gas every morning before allowing the miners to enter the mine.

February 15, 1900.—On this date I again visited the Monero mine No. 2 for the purpose of ascertaining if my orders of February 12 had been carried out. I found that a much larger volume of air had been conducted to the face of No. 1 left room, and the room was clear of gas.

KUTZ MINE.

[G. W. Kutz, owner and operator.]

This is a new mine which has been opened up this year, and is situated about one-fourth of a mile from Monero post-office in an easterly direction. This mine is located in Rio Arriba County, N. Mex., owned and operated by G. W. Kutz. Kind of coal, bituminous; thickness of vein, 3½ feet; total output for fiscal year, 4,000 tons; estimated value of output, $5,000; depth of slope, 400 feet; value of improvements, $4,500; average number of men employed outside, 5; average number of men employed inside, 12; where coal is marketed, Denver and Rio Grande Railroad Company; number of days mine worked, 300.

RECORD OF INSPECTION.

September 19, 1899.—On this date I was inspecting the mine known as the Kutz mine. At the time of my visit a slope had been driven down on the vein of coal, a distance of 140 feet, and an air shaft had been sunk down a distance of 52 feet, but connection had not been made between the air shaft and the slope and I took no air measurements. I found the workings in good condition.

February 13, 1900.—On this date I again inspected the mine known as the Kutz mine. At the time of my visit to the mine there were only three miners employed therein and I took no air measurements. On this date the workings on the slope and the air shaft had been connected.

McBROOM'S MINE.

[Jas. W. McBroom, general manager.]

This mine is located about 1½ miles in an easterly direction from the town of Monero, Rio Arriba County, N. Mex. Owned and operated by the McBroom Brothers. This is a new mine which has been operated in a small way since September 1, 1899. Kind of coal, bituminous; thickness of vein, 3 feet; total output for fiscal year, 1,706 tons; estimated value of outpout, $2,388.40; length of drift, 200 feet; value of improvements, $1,200; number of men employed outside, 1; number of men employed inside, 3; where coal is marketed, Creede, Colo., and New Mexico; number of days mine worked, 250.

RECORD OF INSPECTION.

February 13, 1900.—On this date I inspected the mine known as the McBroom's mine. At the time of my visit to the mine a drift had been driven in on the vein of coal a distance of 200 feet, and one entry had been driven off to the left of the slope to a distance of 200 feet. I found the workings in fair condition.

On account of there being only 3 men employed in this mine I did not deem it necessary to visit the mine again during the fiscal year.

SOCORRO COUNTY.

CARTHAGE MINE.

[A. H. Hilton, general manager; Hilton & Luerra, operators.]

This mine is located about 12 miles in a southeasterly direction from the town of San Antonio, Socorro County, N. Mex. The coal is hauled in wagons to San Antonio, where it is loaded on the cars and shipped to different towns along the Atchison, Topeka and Santa Fe Railroad. This mine has a capacity of about 50 tons per day, and is ventilated by an air shaft. Considerable development work has been done on the mine this year, and the coal is a very good quality of bituminous coal, but the cost of hauling the coal 12 miles by wagon to the railway station is too great an expense to enable the operators to compete successfully with other mines which are situated more conveniently to market. Kind of coal mined, bituminous; thickness of vein, 4 feet 6 inches; total output for fiscal year, 6,000 tons; estimated value of output, $12,000; length of slope, 2,000 feet; value of improvements this year, $1,000; average number of men employed outside, 3; average number of men employed inside, 12; average number of boys employed outside, 1; number of days mine worked, 270.

RECORD OF INSPECTION.

January 30.—On this date I inspected the mine known as the Carthage mine. I measured 3,150 cubic feet of air entering the mine per minute and measured 3,225 cubic feet of air returning per minute. I then inspected all of the underground workings of the mine. I found the miners working too far in advance of the air in all the rooms, also in the straight entry, and ordered Mr. Luerra, who is foreman at the mine, to have crosscuts driven at the face of the workings, and he informed me that he would have crosscuts driven at once. Otherwise I found the mine in good condition.

March 30, 1900.—On this date I called on Mr. A. H. Hilton, at San Antonio, N. Mex., who is one of the parties interested in operating the Carthage coal mine. He informed me that the mine was not being operated, and would not be until coal bins and screens were erected at the mine, which would take considerable time, and for that reason I did not visit the mine any more during the year.

MINES NOT IN OPERATION.

Hartsell mine, Colfax County, not operated this year.
Smith mine No. 1, Colfax County, not operated this year.
Waldo mine, Santa Fe County, not operated this year.
Miller Gulch mine, Santa Fe County, not operated this year.
Canavan & Bailey mine, Bernalillo County, not operated this year.
Sunshine mine, Bernalillo County, not operated this year.
Monero mine No. 3, Rio Arriba County, not operated this year.
Lumberton mine, Rio Arriba County, not operated this year.

MINES ABANDONED THIS YEAR.

Crown Point, Bernalillo County, N. Mex.
Smith mine No. 2, Colfax County, N. Mex.
Mesa mine, Colfax County, N. Mex.
Latamore mine, Colfax County, N. Mex.

NEW MINES OPENED THIS YEAR.

Kutz mine, Rio Arriba County, N. Mex.
Dawson mine, Colfax County, N. Mex.
McBroom's mine, Rio Arriba County, N. Mex.
Davis Canon mine, Colfax County, N. Mex.
Akers mine No. 4, Lincoln County, N. Mex.
Ayers mines, Nos. 7 and 8, Lincoln County, N. Mex.

Table showing name of mine, method of working, ventilation, power, etc.

Name of mine.	Method of working.	Ventilation.	Power.
Crown Point	Double compartment shaft	Fan	Steam.
Gallup	Slope, double entry, room and pillar	do	Do.
Otero	Slope, single entry, room and pillar	do	Do.
Rocky Cliff	Drift, single entry, room and pillar	Furnace	Mules.
Blossburg mines	Drift, double entry, room and pillar	Fans	Electricity.
Mesa mines	Drift, single entry, room and pillar	Air shaft	Horse.
Smith mine No. 2	do	Furnace	Do.
Monero, Nos. 1 and 2	Slope, single entry, room and pillar	do	Steam.
Carthage	do	Air shaft	Horse.
Cook & White	Slope, double entry, room and pillar	Two fans	Steam.
Lucas	do	Fan	Do.
Catalpa	do	do	Do.
W. A, Clark	do	Air shaft	Electricity.
Thatcher	do	Fan	Steam.
Stewart	Slope, single entry, room and pillar	Air shaft	Horse.
Union	do	do	Steam.
Old Abe	Single entry, room and pillar	Natural	Horse.
Akers mines, Nos. 1 and 4.	Slope and 3-entry system	Fans	Steam.
Ayers	do	Furnace	Do.
Kutz	Single entry, room and pillar	do	Horse.
McBroom	do	Natural	Do.
Omara	Slope, single entry, room and pillar	Air shaft	Whim.
Davis Canon	Drift, single entry, room and pillar	Furnace	Mules.
Dawson	do	Natural	Horse.

Road between the Towns of Las Cruces and Mesilla.

SAN JUAN COUNTY.

I forwarded statistical blanks to the parties who operated coal mines during the fiscal year ended June 30, 1899, in San Juan County, N. Mex., but no report has been received from the operators. During the fiscal year ended June 30, 1899, there was produced in San Juan County 810 tons of coal.

SANTA FE COUNTY.

Analysis of coal from the Cook & White mine of the Colorado Fuel and Iron Company.

[Made by W. D. Church, December 2, 1893.]

Coal from Madrid, N. Mex., Cook & White mine:		
Water	per cent..	2.00
Volatile matter	do....	39.00
Fixed carbon	do....	53.76
Mineral ash	do....	5.24
Total		100.00
Coke	per cent..	59.00
Character of coke, strong and tough.		
Color of ash, light yellowish gray.		
Character of ash, soft and light.		
Sulphur (as sulphide)	per cent..	.010
Sulphur (as sulphate)	do....	.022
Phosphorus	do....	.006
Specific gravity	do....	1.410
One cubic foot weighs	pounds..	88.125
Analysis of mineral ash:		
Silica	per cent..	26.93
Alumina	do....	32.41
Oxide of iron	do....	3.96
Calcium oxide	do....	24.68
Magnesium oxide	do....	10.32
Calcium sulphate	do....	.21
Alkalies and loss	do....	1.49
Total		100.00

COLFAX COUNTY.

Coal from Raton Coal and Coke Company:		
Water	per cent..	.75
Volatile matter	do....	34.40
Fixed carbon	do....	56.93
Mineral ash	do....	7.92
Total		100.00
Coke	per cent..	64.85
Character of coke, very strong and tough.		
Color of ash, very light ocher.		
Character of ash, soft and light.		
Sulphur (as sulphide)	per cent..	.016
Sulphur (as sulphate)	do....	.022
Phosphorus	do....	.014
Specific gravity	do....	1.291
One cubic foot weighs	pounds..	88.690
Analysis of mineral ash:		
Silica	per cent..	44.16
Alumina	do....	39.28
Oxide of iron	do....	2.95
Calcium oxide	do....	7.41
Magnesium oxide	do....	3.27
Sulphate of calcium	do....	.41
Alkalies and loss	do....	2.52
Total		100.00

Names and addresses of superintendents or managers of the mines of the Territory.

Name of mine.	Post-office.	Officers.
Gallup	Gallup, N. Mex	W. M. Weaver, general manager; Hugh McGinn, superintendent.
Catalpa	do	Do.
Crown Point	do	Do.
Otero	do	Alex. Bowie, general manager; John Stewart, superintendent; Jas. W. Bowie, mining engineer.
Thatcher	do	Do.
W. A. Clark	Clarkville, N. Mex	W. L. Bretherton, agent.
Rocky Cliff	Gallup, N. Mex	Stephen Canavan, manager.
Stewart	do	William Stewart, manager.
Union	do	J. C. Spears, president.
Blossburg mines	Gardiner, N. Mex	J. Van Houten, vice-president; J. A. Wiggs, superintendent.
Davis Canon mine	Raton, N. Mex	Albert J. Shaw, general manager.
Dawson mine	Dawson, N. Mex	J. B. Dawson, owner.
Cook & White	Madrid, N. Mex	H. J. Elliott, superintendent.
Lucas	do	Do.
Omara	Santa Fe, N. Mex	Frederick Muller, manager.
Monero, Nos. 1 and 2	Monero, N. Mex	J. H. Crist, general manager.
Kutz	Lumberton, N. Mex	Geo. W. Kutz, owner.
McBroom's	Monero, N. Mex	J. C. McBroom, manager.
Carthage	San Antonio, N. Mex	A. H. Hilton, general manager.
Old Abe mine	White Oaks, N. Mex	John Y. Hewitt, general manager.
Akers, Nos. 1 and 4	Capitan, N. Mex	W. P. Thompson, general manager.
Ayers, Nos. 2, 7, and 8	do	Do.

THE COAL TRADE.

During the past fiscal year the coal trade has been exceedingly brisk, and although the total production of coal shows a marked increase the demand for the coal produced in the Territory has been much greater than the supply. At all mines in the Territory, except the very small mines, the operators were unable to fill more than two-thirds of the orders received. On account of the scarcity of miners the operators were unable to meet the demand for coal. Had it not been for the great scarcity of miners the increase in total production for the fiscal year would have been many tons greater.

Production of coal.

Name of mine.	Men employed.		Tons of coal mined.		Estimated value of product, 1899-1900.
	1898-1899.	1899-1900.	1898-1899.	1899-1900.	
Bernalillo County:					
Gallup	275	225	151,525	180,000	$250,000
Catalpa	105	112	58,061	80,000	110,000
Crown Point	123	44	45,490	40,000	55,000
Union	0	12	0	3,000	5,000
Otero	172	183	96,473	89,000	139,724
Thatcher	38	89	11,811	32,000	47,000
W. A. Clark	90	238	46,986	90,050	124,269
Rocky Cliff	10	50	5,000	28,100	39,340
Stewart	9	18	2,000	6,000	10,000
Total	817	971	416,846	548,150	780,333
Colfax County:					
Blossburg, Nos. 4 and 6	240	333	308,316	391,618	587,427
Blossburg, No. 8	0	114	0		
Blossburg, No. 9	0	51	0		
Smith, No. 2	6	7	3,631	1,890	3,780
Mesa	5	5	1,100	300	450
Davis Canon	0	16	0	5,098	10,000
Dawson	0	1	0	300	450
Total	251	527	313,047	399,206	602,107
Santa Fe County:					
Cook & White	285	128	145,000	67,117	100,675
Lucas	200	97	45,000	41,595	114,385
Omara	7	5	1,139	1,500	3,000
Total	492	230	191,139	110,212	218,060

Production of coal—Continued.

Name of mine.	Men employed.		Tons of coal mined.		Estimated value of product, 1899–1900.
	1898–1899.	1899–1900.	1898–1899.	1899–1900.	
Rio Arriba County:					
Monero, Nos. 1 and 2	45	42	39,000	30,000	$40,000
Kutz	0	17	0	4,000	5,000
McBroom's	0	4	0	1,706	2,388
Total	45	63	39,000	35,706	47,388
Socorro County:					
Carthage	3	17	2,400	6,000	12,000
Lincoln County:					
Old Abe	4	10	1,469	4,246	9,649
Akers, Nos. 1 and 4	17	142	0	70,587	141,174
Ayers, Nos. 2, 7, and 8	29	52	0	13,227	26,454
Total	50	204	1,469	88,060	177,277
San Juan County:					
Bruce	1	0	100	0	0
Thomas	2	0	150	0	0
Stevens	1	0	310	0	0
Morgan	2	0	250	0	0
Total	6	0	810	0	0

Counties.	Output for fiscal year ended June 30, 1900.	Estimated value.	Percentage of output for Territory.
	Tons.		*Per cent.*
Bernalillo	548,150	$780,333	46.582
Colfax	399,206	602,107	33.713
Rio Arriba	35,706	47,388	3.818
Lincoln	88,060	177,277	7.494
Santa Fe	110,212	218,060	8.335
Socorro	6,000	12,000	.058
Total	1,187,334	1,837,165	100.000

The production for the fiscal year ending June 30, 1900, was 1,187,334 tons, which was an increase of 138,300 tons over the total production of the previous fiscal year.

The total estimated value of the production for the fiscal year ended June 30, 1900, was $1,837,165, being an increase of valuation of $236,577 over the fiscal year ending June 30, 1899.

EMPLOYEES.

The following tabulated statement shows the number of miners, day men, and boys employed in and about the coal mines of the Territory of New Mexico during the fiscal year ended June 30, 1900:

Counties.	Miners.	Boys.	Day men.	Total.
Bernalillo	813	28	130	971
Colfax	459	20	48	527
Santa Fe	148	34	48	230
Rio Arriba	42	5	16	63
Socorro	12	1	4	17
Lincoln	184	2	21	207
Total	1,658	90	267	2,015

In the column headed "Day men" are included all men employed in and about the mines in any capacity except those actually engaged in mining.

During the fiscal year ended June 30, 1899, there were employed in and about the mines of the Territory 1,507 miners, 44 boys, and 329 day men, making a total of 1,880 employees.

During the fiscal year ended June 30, 1900, as shown by the above tabulated statement, there were employed in and about the mines of the Territory 1,658 miners, 90 boys, 267 day men, making a total of 2,015 employees.

A comparison of the two fiscal years shows an increase of 151 miners, 46 boys, but a decrease of 62 day men, making a total increase of 135 in the total number of employees for the fiscal year ended June 30, 1900.

Used at mines.

	Tons.
Bernalillo County:	
Gallup	5,000
Catalpa (principally slack)	1,500
Crown Point (principally slack)	1,500
Union	50
Otero (principally slack)	500
Thatcher (principally slack)	350
W. A. Clark (principally slack)	1,900
Rocky Cliff	None
Stewart	None
Colfax County:	
Blossburg, Nos. 4, 6, 8, 9	5,786
Smith, No. 2	None
Mesa	None
Davis Cañon	None
Dawson	None
Santa Fe County:	
Lucas (principally slack)	4,875
Cook & White (principally slack)	5,892
Omara	None
Rio Arriba County:	
Monero, Nos. 1 and 2 (principally slack)	1,200
Kutz	None
McBroom's	None
Socorro County:	
Carthage	None
Lincoln County:	
Old Abe	None
Akers	750
Ayers	100

PRODUCTION OF COKE.

On July 10, 1900, I wrote the following letter:

SILVER CITY, N. MEX., *July 10, 1900.*

SIR: I am now preparing my annual report of the coal mines of New Mexico, and as your company has had considerable coke made in the Territory, I want you to please give me the number of tons of coke made at Gardiner, also at Waldo ovens; and send analysis of coke if you have it; also name of mines which the coke was made from, and locality of mines; where coke is marketed, and value of coke at ovens. Hoping you will forward this data as soon as possible, I remain,

Very respectfully, yours,

JOHN W. FLEMING,
United States Mine Inspector.

JOHN T. KEBLER, Esq.,
General Superintendent of Colorado Fuel and Iron Co., Denver City, Colo.

In reply to the above I received the following letter:

DENVER, COLO., *July 23, 1900.*

DEAR SIR: Complying with yours of July 10 and 16, I beg to report as follows:

	Tons.
Production of the Waldo coke ovens for the year ending June 30, 1900	21,953.50
Production of the Gardiner coke ovens for the year ending June 30, 1900	18,310.80

We operated the Gardiner ovens entirely until March, 1900. We only operated them part of April and part of May, and turned them back to the Raton Coal and Coke Company in June.

The coke made at both of these ovens is from Starkville slack, Starkville mine, situated in Las Animas County, Colo., on the Atchison, Topeka and Santa Fe Railway.

Yours, very truly,

JOHN T. KEBLER.

Mr. JOHN W. FLEMING,
United States Mine Inspector, Silver City, N. Mex.

The coke made from the Starkville mine, of Las Animas County, Colo., runs from 85 to 87 per cent in fixed carbon; 11 to 13 per cent in ash; 1 per cent in moisture, and 0.75 per cent in volatile matter. It takes about 1.55 tons of coal to make 1 ton of coke.

The production of coke from the Raton Coal and Coke Company's ovens, after the time the Colorado Fuel and Iron Company stopped making coke, up to June 30, 1900, amounted to 2,539 tons.

The coke produced was shipped and sold to the different smelting plants in New Mexico, Arizona, Old Mexico; also to the plants in El Paso, Tex.

The total number of tons of coke made in the Territory during the fiscal year was 42,803.30 tons.

FATAL ACCIDENTS.

During the fiscal year there were reported to me as mine inspector 15 fatal accidents, the causes of which were as follows: By fall of rock, 4; by fall of coal, 4; by fall of slate, 1; by suffocation, 1; by pit cars, 3; by powder explosion, 2.

The following table shows the number of tons of coal mined for each life lost:

County.	Mined.	Lives lost.	Coal mined for each life lost.
	Tons.		*Tons.*
Bernalillo	548,150	11	49,831$\frac{9}{11}$
Colfax	399,206	2	199,603
Rio Arriba	35,706	0	....
Lincoln	88,060	1	88,060
Santa Fe	110,212	1	110,212
Socorro	6,000	0	....
Total	1,187,334	15	....

Total number of tons mined in Territory	1,187,334
Total number of lives lost in Territory	15
Total number of tons mined in Territory for each life lost	79,155$\frac{3}{5}$

NONFATAL ACCIDENTS.

During the fiscal year there were reported to me as mine inspector 25 nonfatal accidents, the causes of which were as follows: By fall of rock, 13; by pit cars, 4; by fall of coal, 5; by being caught between bumpers, 1; by bull-wheel, 1; by being kicked by mule, 1.

The following table shows the number of tons of coal mined for each nonfatal accident:

County.	Mined.	Accidents.	Coal mined for each nonfatal accident.
	Tons.		*Tons.*
Bernalillo	548,150	9	60,905$\frac{5}{9}$
Colfax	399,206	10	39,920$\frac{6}{10}$
Rio Arriba	35,706	0	....
Lincoln	88,060	3	29,353$\frac{1}{3}$
Santa Fe	110,212	3	36,737$\frac{1}{3}$
Socorro	6,000	0	....
Total	1,187,334	25	....

Total number of tons mined in Territory	1,187,334
Total number of nonfatal accidents	25
Total number of tons mined in Territory for each nonfatal accident	47,493$\frac{9}{25}$

Accidents of a fatal character reported to me as mine inspector for the fiscal year ended June 30, 1900, showing where accidents occurred, date, name of person killed, and the cause of death:

Where accident occurred.	Date.	Name.	Character of injury.	Cause of death.
Thatcher mine, Gallup, N. Mex.	July 17, 1899	John B. Larmour	Leg broken and injured internally.	Fall of top coal.
	Nov. 6, 1899	Conrad Johnson	Neck broken and body crushed.	Fall of rock.
W. A. Clark mine, Clarkville, N. Mex.	Nov. 29, 1899	Michael Rosqualona	Body crushed	Do.
	Dec. 23, 1899	Atanacio Lopez	Skull broken and other injuries.	Fall of coal.
Otero mine, Gallup, N. Mex.	Apr. 24, 1900	John Cominolo	Neck broken	Fall of top coal.
	Mar. 31, 1900	Thos. F. McGrail	Collar bones broken; chest caved in.	Do.
Smith mine No. 2, Raton, N. Mex.	Oct. 24, 1899	Hopkin Hopkins	Head mashed	Fall of rock.
Cook & White mine, Madrid, N. Mex.	Dec. 7, 1899	Thos. Mullen	Head and breast crushed.	Fall of slate.
Rocky Cliff mine, Gallup, N. Mex.	Feb. 18, 1900	Manuel Torrez	Overcome by powder smoke.	Suffocated.
Blossburg mine No. 3, Gardiner, N. Mex.	Mar. 25, 1900	Barney Pezzoti	Body crushed	Fall of rock.
Catalpa mine, Gallup, N. Mex.	Apr. 7, 1900	Anton Vicich	Neck broken; injured internally.	Pit cars.
Akers mine No. 4, Capitan, N. Mex.	May 28, 1900	Daniel Salmon	Body crushed	Do.
Gallup mine, Gibson, N. Mex.	Sept. 22, 1899	John Barrett	do	Do.
	June 18, 1900	Chas. Gracey	Skull fractured; badly burned.	Powder explosion.
	June 18, 1900	John Calcaterra	do	Do.

RECORD OF FATAL ACCIDENTS.

THATCHER MINE.

July 17, 1899.—John B. Larmour, age 30 years, a miner, nativity American, was injured in the Thatcher mine, room No. 9. Cause, fall of top coal. He was working in the Thatcher mine; there was a slip running along the face of the room just where this coal was standing. He knew the coal was not safe to work under, and tried to pull it down, but it was a little hard to get down and he started to do some work underneath it. While he was working it came down on him and caught him from the waist line down, injuring him as heretofore stated. He died from his injuries July 20, at about 2 o'clock p. m. No coroner's inquest held.

November 6, 1899.—Conrad Johnson, about 41 years of age, nativity Sweden, occupation miner, was injured in the Thatcher mine, in what is known as the Johnson entry on November 6, 1899, at about 1.45 o'clock p. m. His neck was broken, also one arm and leg, and he was severely crushed in the chest, and killed instantly. On the morning of November 7 I hired a conveyance and drove to the Thatcher mine, and upon investigation I found that Conrad Jonnson, who was employed as a miner in the mine and was working in the first right entry, known as the Johnson entry, had been killed while loading a car of coal. I went down into the mine where the fatal accident had occurred, and found that the deceased had been killed while loading a car of coal at the face of the entry by a fall of rock from the roof of the entry. He, Conrad Johnson, and his brother Gus were working together, driving entry, and his brother Gus states that they had sounded the roof of the entry before commencing to load the coal, and were satisfied that it was perfectly safe to work under; but while loading the car the rock fell, killing his brother almost instantly.

Copy of coroner's inquest.

[Precinct No. 27.]

TERRITORY OF NEW MEXICO, *County of Bernalillo:*

We, the justice of the peace and jury who sat upon the inquest held this 7th day of November, 1899, on the body of Conrad Johnson, found in precinct No. 27, county of Bernalillo, find that the deceased came to his death by reason of a fall of rock in the Thatcher mine, while deceased was employed in said mine as a miner, driving entry, and that the cause of said death was accidental, and we find that there can be no blame attached to anyone for the cause of said death except the deceased.

Theo. Maxwell, *J. P.*
E. L. Watkins.
George L. Bolton.
George W. Hight.
John Osborne.
Chas. McKittrick.
Fred Finger.

I do hereby certify that the above is a true copy of the verdict rendered in said inquest.

Theo. Maxwell, *J. P.*

November 29, 1899.—Michael Rosqualona, age 27 years, an Italian miner, was injured in No. 3 east entry of the W. A. Clark coal mine on the 29th day of November, 1899, at about 8.30 o'clock a. m. His neck was broken by a fall of rock.

Copy of coroner's report.

Clarkville, *Bernalillo County, N. Mex.:*

We, the undersigned, justice of the peace and jury who sat upon the inquest held this 29th day of November, 1899, on the body of Michael Rosqualona, find that the deceased came to his death by reason of being crushed under a fall of rock from the roof in the Clarkville mine, where deceased was employed mining coal, and that said death was accidental, and that no person or persons were responsible for his death except the deceased himself, it being a case of neglect on the part of the deceased.

Theodore Maxwell, *J. P.*
R. H. Edmondson.
G. W. Churchill.
Sam Tovieri.
Jos. Schold.
John Balneck.
T. A. Todin.

December 23, 1899.—Atanacio Lopez, age 23, nativity New Mexico, occupation coal loader, was injured in the W. A. Clark mine at Clarkville, N. Mex., in the first east entry, room No. 16, on the 23d day of December, 1899, at about 8 o'clock p. m. His injuries were as follows: Base of skull broken, limbs broken, and head badly crushed, causing immediate death, by fall of coal.

Copy of coroner's report.

[Precinct No. 27.]

Territory of New Mexico, *County of Bernalillo:*

We, the undersigned, justice of the peace and jury who sat upon the inquest held this 23d day of December, 1899, on the body of Atanacio Lopez, who was found dead in precinct No. 30 of Bernalillo County, on the 23d day of December, 1899, find that the deceased came to his death by reason of being crushed under a fall of coal while employed mining coal in the Clarkville mine, and that said killing was accidental and unavoidable, and that no person or persons are criminally responsible for the cause of said death.

Theodore Maxwell, *J. P.*
James D. Montez.
M. Plunkett.
J. Hague.
John Scott.
Simon Lancaster.
H. S. Chavez.

I certify that the foregoing is a true copy.

Theo. Maxwell,
Justice of the Peace, Gallup, N. Mex.

March 13, 1900.—Thomas F. McGrail, 38 years of age, nativity Scotch, occupation miner, was injured in the Otero mine, room No. 20, on the first west entry, on the 30th day of March, 1900, at about 11 o'clock a. m. He had both collar blades broken and his chest caved in by a fall of top coal. He was brought out of the mine at about 11.15 a. m. on the 30th of March, 1900, and died about 3 p. m. on the 31st.

April 12 I visited the mine known as the Otero mine. Upon my arrival at the mine the superintendent informed me that Thos. F. McGrail had been injured in the mine on the 30th day of March, at 11 o'clock a. m., by a fall of top coal, and died from the injuries sustained on March 31, at about 3 o'clock a. m. I visited the place where the accident occurred, which was in room 20, on the first west entry, and found that the deceased had undermined the coal for a distance of 8 feet, and left the top coal standing with two loose ends, without putting props up to keep it from falling. The top coal is about 15 inches thick, and while the deceased was working under this top coal a piece of coal fell on him, breaking both collar bones, and injured him in such a way as to cause his death.

April 24, 1900.—John Cominolo, age 30 years, nativity Italian, occupation miner, was injured in the Otero mine, in room No. 20, on the first west entry, on the 24th day of April, 1900, at about 3 o'clock p. m. His neck was broken by a fall of top coal.

Copy of coroner's report.

[Precinct No. 27.]

TERRITORY OF NEW MEXICO, *County of Bernalillo:*

We, the undersigned justice of the peace and jury who sat upon the inquest held on the body of John Cominolo, found in precinct 27 in the county of Bernalillo, find that the deceased came to his death by reason of being crushed by a fall of coal in the Otero mine while employed in said mine as coal miner, and we find that said killing was purely accidental, and that no person or persons are responsible for said death except the deceased, through his own negligence.

THEO. MAXWELL, *J. P.*
E. F. KENNEY,
HOMER TUCKER,
CHAS. HODGE,
FRED W. MEYERS,
A. MCASKILL,
Jurors.

October 24, 1899.—Hopkin Hopkins, age 48 years, nativity Wales, occupation miner, was injured in the Smith mine No. 2 while drawing pillars on the 24th day of October, 1899, at about 7 o'clock p. m., by a fall of rock, causing his death instantly.

Report of coronor's jury.

TERRITORY OF NEW MEXICO, *County of Colfax.*

We, the undersigned justice of the peace and jury who sat upon the inquest held this 25th day of October, 1899, on the body of Hopkin Hopkins, found in the Smith mine No. 2, in Colfax County, N. Mex., on October 24, 1899, find that the deceased came to his death by reason of a cave-in in said mine, caused by his refusal and neglecting to properly timber said mine, although he was ordered to do so and the timber furnished him for that purpose.

CHAS. M. BAYNE, *J. P.*
JAS. H. WALKER,
GEO. J. PACE,
ALVIN C. ASH,
J. W. KENNEDY,
J. R. LITTRELL,
A. C. PRICE,
Jurors.

December 7, 1899.—Thomas Mullen, age 34 years, nativity American, occupation miner, was injured in the Cook & White mine at Madrid, N. Mex., while drawing pillars on No. 1 left entry, by a fall of slate. He was bruised about the head and breast, causing death about two hours after the accident occurred. He was supposed to be taking down a piece of slate, when it fell, crushing him against the face of the coal. He was removed from the mine and attended by Dr. Dodds, and died about two hours after the accident happened, the doctor's opinion being a fracture at base of the brain, which caused his death. In this case there was no coroner's jury, but the justice of the peace—Gus Johnson—examined the place, and concluded no inquest was necessary.

February 13, 1900.—Manuel Torrez, age 38 years, nativity Mexican, occupation coal miner, was injured in the Rocky Cliff mine, at Gallup, N. Mex., in room No. 7, on the second left entry, on the 13th day of February, 1900, at about 5.30 o'clock p. m. He was overcome by powder smoke, and suffocated.

Copy of coroner's report.

TERRITORY OF NEW MEXICO, *County of Bernalillo.*

We, the undersigned justice of the peace and jury who sat upon the inquest held in Gallup precinct No. 30 on the dead body of Manuel Torrez, find that he came to his death by being overcome by powder smoke and coal falling on him while at work in the Rocky Cliff mine on February 13, 1900. It was shooting time in the evening. There were two men working in the one place, and had two shots to fire. They had fired one, and Torrez went back to fire the second. He had lit the second squib, when he got overcome with smoke. Then the second shot went off on him. The accident happened at 5.30 p. m. and he died at 7.30 p. m. Age, 38 years. Leaves a wife and four children.

ARCHIE BROWN, *J. P.*
ED. MORRIS,
BEN THOMAS,
DAVE HEREBINGER,
WM. ARMSTRONG,
J. H. BLACK,
JOHN JACHINA,
Jurors.

March 25, 1900.—Barney Pezzoti, about 28 years of age, nativity Italian, occupation timberman, was injured in the Blossburg mine No. 8, in room No. 2, on the second right entry, on the 25th day of March, 1900, at about 10 o'clock a. m., by a fall of rock, which killed him instantly. This day, Sunday, at 12 m., I was notified by J. L. Wiggs, superintendent of the Blossburg mines, that a man had been killed in the Blossburg mine No. 8. I immediately started for the mine and visited the place where the man had been killed, which was in room No. 2 on the second right entry. I found that Barney Pezzoti, an Italian, whose occupation was that of a timberman, had been filling a pit car with coal, and was working at the face of the room, when a piece of rock, commonly called a "pot," fell from the roof of the room so as to catch the deceased, crushing him and breaking his neck, causing death nearly instantaneously. I found the room well timbered up to within 5½ feet of the face of the coal. I consider that this was one of those accidents which can not be well guarded against, being a slip of rock from an apparently solid roof and up against the face of the coal; and the deceased, being an expert timberman, would have timbered the place had he thought it was in any way dangerous.

Copy of coroner's report.

We, the undersigned justice of the peace and jury who sat upon the inquest held this 25th day of March, 1900, on the body of Barney Pezzoti, found in precinct No. 24, of the county of Colfax, Territory of New Mexico, find that the deceased came to his death by reason of a rock, called by miners a "pot," falling from the roof of room No. 2, second right entry, Blossburg mine No. 8, of the Raton Coal and Coke Company. This rock fell so as to catch the deceased, crushing him and breaking his back, causing death nearly instantaneous.

By the testimony given it is disclosed that the accident was purely accidental and unavoidable, and that the Raton Coal and Coke Company is in no way to blame or responsible for the accident, as the room was well timbered to within 5 feet of the face of the coal, and that the employees who were working near where the accident occurred did everything possible to save him.

GEORGE A. WEYMOUTH, *J. P.*
E. W. ULMER,
CHAS. F. BRIDEWELL,
S. A. DRIVER,
C. H. PLUMB,
RAY HAMMOND,
S. M. ULMER,
Jurors.

April 7, 1900.—Anton Vicich, age 51 years, nativity Austrian, occupation miner, was injured in the Catalpa mine, in room 13, on the third right entry, on the 7th day of April, 1900, at about 1.30 o'clock p. m. He was run over by a pit car; his neck was broken, killing him almost instantly.

Copy of coroner's report.

We, the justice of the peace and jury who sat upon the inquest held this 7th day of April, 1900, on the body of Anton Vicich, found dead at the Catalpa mine, in room No. 13, on the third right entry, find that the deceased came to his death by being run over by a loaded pit car in said mine, while in the employ of the Colorado Fuel and Iron Company, and that said killing was accidental, and that no person or persons are responsible for said death, except the deceased, through his own negligence.

WM. MAXWELL, *J. P.*
JOHN BUCKLEY,
H. S. KENYON,
ALEX. SANFORD,
E. STURGILL,
JOHN F. ADAMSON,
L. B. DAVIS,
Jurors.

I arrived in Gallup on April 11, and on this date I was informed that Anton Vicich had been killed in the Catalpa mine, and the accident occurred on the 7th day of April, 1900. I immediately hired a conveyance and drove to the mine, and in company with the pit boss went down into the mine to the place where the accident had occurred, which was in room No. 13 on No. 3 right entry. I found that the deceased worked in room No. 13 with his partner, and when they had a pit car loaded with coal they lowered it down from the face of the room to the main hauling entrance. In lowering the car they used two hind wheel sprags as brakes to lower the car down, and while loading the car with coal they put two wooden blocks in front of the wheels. When loaded, one man goes in front and pulls out the wooden blocks and the other man puts the sprags in the hind wheels and holds back from behind the car. The cause of this accident was neglect on the part of the deceased or his partner to put in the sprags and lock the two hind wheels, which would cause the car to run very slow down the grade, and when the wooden blocks were taken away from the front wheels the loaded car started quickly and passed over the body of Anton Vicich, breaking his neck and killing him instantly.

May 28, 1900.—Daniel Salmon, 35 years of age, an American, occupation coal loader, was injured in the Akers mine No. 4, at Capitan, N. Mex., in room No. 9, No. 1 south entry, on the 28th day of May, 1900, at about 8 o'clock a. m. He was run over by a pit car and seven ribs on left side fractured, partially pressing in on heart and lungs; scalp wound on head; and badly crushed, and died in about thirty minutes after the accident occurred.

J. L. McBroome, being first duly sworn, on oath deposes and says: I am a driver in No. 4 mine. Salmon is a shoveler and loads cars in No. 4. The accident occurred this way. I had pulled the car up to where Salmon was working; I had my side of the car blocked up. I don't know whether there was any sprag there or not. I told Salmon to block up his side and then asked him if he had done it and Salmon said he had. Then I went around the side of the car and unhitched the mule. When I looked around, the car commenced to move and Salmon was in front of the car trying to hold it. I hollered to him to get out of the way, but he didn't either understand me or was too confused to mind. Salmon was with his face toward the car, and as it went faster he fell and the car run on him and jumped the track. I went down to where the car was with a Mexican and lifted one side of it and Salmon crawled from under. He was bleeding from a cut in the head and was trying to wipe the blood off. I told him not to and made him put his pit cap on so as to prevent the blood coming down. I then asked him where his coat and dinner bucket was, so we could leave the mine. Salmon walked two or three steps and then sat down. He said he couldn't walk farther, so the Mexican and myself got the pit car and brought it to him, but he was too weak to get in it; so I went to the mouth of the opening to get help. When I came back with help Salmon was lying down. He lived about half an hour from the time he got hurt.

Copy of coroner's report.

We, the undersigned, justice of the peace and jury who sat upon the inquest held this 28th day of May, A. D. 1900, on the body of Daniel Salmon, found in precinct No. 9 of the county of Lincoln, Territory of New Mexico, find that the deceased came to his death by reason of an accident caused by and of fault of his own carelessness or negligence.

W. C. CHEATHAM, *J. P.*
W. A. VENTERS,
J. F. KROUT,
G. W. TYLER,
M. W. MURRAY,
IRA P. WETMORE,
T. E. WILCOX,
Jurors.

TERRITORY OF NEW MEXICO, *County of Lincoln, ss:*

I, W. C. Cheatham, justice of the peace within and for precinct No. 9, Lincoln County aforesaid, do hereby certify that the above and foregoing is a true and correct copy of the verdict rendered by the jury who sat upon the inquest held this the 28th day of May, A. D. 1900, upon the body of Daniel Salmon, deceased.

W. C. CHEATHAM,
Justice of the Peace, Precinct No. 9, Lincoln County, N. Mex.

June 13, 1900.—John Calcaterra and Charles Gracey, aged 35 and 44, respectively—occupation, coal miners—were injured in the Gallup mine, at Gibson, N. Mex., while working on the main slope on the 13th day of June, 1900, at about 8 o'clock p. m. John Calcaterra was killed instantly, having compound fracture of skull on left side through temple, one on right side of head over ear, and one on lower jaw; also badly burned about head, neck, and arms. His age was 35 years; an Italian by birth. Charles Gracey was killed by compound fracture of the skull near the anterior, and severely burned about head, neck, arms, and hands. He was 44 years of age and a native of Ireland.

On the night of June 13, 1900, at 9.40 p. m., I was notified that two men had been killed who were working on the night shift in the Gallup mine, which mine is being operated by the Colorado Fuel and Iron Company. I immediately hired a conveyance and drove to the mine, and upon my arrival at the mine I met Hugh McGinn, the superintendent, and asked him who the parties were that had been killed. He informed me that they were Charles Gracey and John Calcaterra. The superintendent also informed me that the two men had been working on the main slope and that the accident occurred about 8 o'clock p. m. I then examined the two bodies and found them badly burned about the head, neck, and arms. I then, in company with the pit boss, P. J. O'Neil, and three experienced miners, went down into the mine to the place where the accident had occurred, which was about 2,400 feet down the slope. I found the floor of the slope was wet, and asked the pit boss when he had the slope wet down, and he informed me that the slope was wet down on the night of the 12th. I then made a careful examination of the place where the accident occurred and could find no indication of any fire around there. I found 9½ sticks of giant powder and a box of caps on the slope only 55 feet away from the place where the men had been working, and found a 25-pound keg of black powder about 300 feet from the place, and had there been much of a flame of fire I am satisfied that both the giant and black powder would have been exploded. On the following morning, June 14, I again visited the mine and made a thorough examination along the slope for gas with my safety lamp, but could not find a trace of gas (CH_4), and there has never been any firedamp discovered in the mine.

I then measured the distance from the place where the accident occurred to where the two bodies were found, and the body of Charles Gracey was found 225 feet up the slope from where the shots had been fired, and John Calcaterra was found 375 feet up the slope. I also took an air measurement at the point where the two men had been working, and, although some of the stoppings had been shattered above this point by the concussion and allowed air to escape, I measured 5,400 cubic feet of air traveling per minute, and, the area being 45 feet at this point, such a volume of air would have cleared the slope of any gas had there been any there. The result of my investigation as to the cause of the death of the two men is as follows:

The two men were employed in brushing the main slope and were using giant powder to smash out the short timbers, and I have been informed that they used 6 sticks of giant powder to blow out each set of timbers. Where they had been working I found 3 sets of timbers blown out, and if they had 6 sticks of giant powder under each set of timbers and fired the 3 shots at one time, which I think they did, it is my opinion that their charge of powder was far in excess of what was required to do their work, and that its action had been similar to what is known as a blow-out shot; and it is my opinion that they remained too close to this powder explosion, and as it exhausted its force in a different direction from what they intended it should, they were blown against the roof, floor, and sides of the slope, burned by the powder flame, and choked by the powder smoke and dust which was stirred up by the powder explosion.

The finding of the coroner's inquest held over the bodies of Charles Gracey and John Calcaterra was as follows:

Copy of coroner's report.

TERRITORY OF NEW MEXICO, *County of Bernalillo:*

We, the undersigned, justice of the peace and jury who sat upon the inquest held this 14th day of June, 1900, on the bodies of Charles Gracey and John Calcaterra, found in the precinct No. 30 of the county of Bernalillo, find that the said parties came to their death by reason of an explosion which occurred in the Gallup mine at 8 o'clock p. m., June 13, 1900, and that the cause of such explosion is a mystery which this jury is unable to solve; and we further find that there was no person or persons criminally responsible for said deaths.

THEO. MAXWELL, *J. P.*
JOHN KENNEDY,
RALPH RYMUS,
JOHN C. RUSSELL,
JOHN W. GRAFFES,
WILLIAM MCSPARRON,
JAMES FRY,
Jurors.

September 22, 1899.—John Barrett, age 28 years, native of Ireland, occupation driver, was injured in the Gallup mine at Gibson, N. Mex., on No. 15 left entry, on the 22d day of September, 1899, at about 11 o'clock a. m., by a loaded trip of cars passing over him, killing him instantly. On this date, at about 6 o'clock p. m., I was informed that a man had been killed in the Gallup mine. I immediately went to the office of the Crescent Coal Company, which company was then operating the Gallup mine, and inquired of one of the office men if a man had been killed in the Gallup mine. He informed me that a driver, whose name was John Barrett, had been reported killed. On the morning of the 23d I drove to the Gallup mine, and upon investigation I found that John Barrett, who had been employed as a driver in the mine and was working on the fifteenth left entry on the inclined plane, had been killed. I found the cause of his death to be as follows:

He, John Barrett, deceased, was in the act of jumping into an empty pit car while it was in motion, when he stumbled and fell, and the loaded trip of pit cars, which were coming down the inclined plane, passed over his body, killing him instantly. "A jury composed of P. A. Neal, Jim Corcoran, W. H. Wiessa, J. M. O'Neil, John Orm, Thomas Edmundson, and the justice of the peace, Archie Brown, found that the whole thing was an accident. Witnesses, Charles Keller and James Coniff." The above quotation is a copy of the coroner's jury report as handed to me.

Table of nonfatal accidents.

Name of mine.	Date.	Name.	Character of injury.	Cause.
Blossburg No. 6, Gardiner, N. Mex.	July 28, 1899	Joe Skiles	Fracture of collar bone.	Fall of rock.
	Aug. 10, 1899	Raphael Avolio	Compound fracture of leg.	Do.
	Aug. 28, 1899	Odie Williams	Cut on right leg	Do.
	Sept. 4, 1899	Thomas Lark	Left foot crushed	Caught between bumpers.
	Sept. 13, 1899	Frank Owens	Dislocated shoulder	Fall of rock.
	do	Camilo Giron	Bruised back	Do.
	do	A. Belaskes	Shin bruised	Do.
	Jan. 11, 1900	Frank Devyak	Dislocation of spinal cord.	Do.
	Mar. 29, 1900	Jose Cacios	Dislocated right hip	Do.
	May 10, 1900	Andrew Shields	Right leg broken	Do.
Cook & White mine, Madrid, N. Mex.	Sept. 22, 1899	Thos. Foster	Hand cut off	By bull wheel.

Table of nonfatal accidents—Continued.

Name of mine.	Date.	Name.	Character of injury.	Cause.
Lucas mine, Madrid, N. Mex.	Sept. 25, 1899	W. H. Wake	Compound fracture of leg.	Fall of rock.
	Oct. 5, 1899	Thos. Greseuti	Compound dislocation of ankle joint.	Fall of coal.
Ayers mine No. 1, Capitan, N. Mex.	Dec. 1, 1899	John Brunett	Injured about the hips	Fall of rock.
	Dec. 5, 1899	Albert Triftriner	Broken collar bone	Fall of coal.
	Dec. 16, 1899	Demasio Trujillo	Kneecap broken	Pit car.
Gallup mine, Gibson, N. Mex.	Aug. 22, 1899	Fred Baugh	Leg lacerated	Fall of coal.
	Feb. 16, 1900	John Polinski	Contused leg	Fall of rock.
	Mar. 29, 1900	John Buckley	Lacerated wound	Pit cars.
	May 12, 1900	James Love	do	Fall of coal.
	June 6, 1900	Joseph Cortese	Compound fracture	Do.
	June 2, 1900	John Sheridan	Fracture of kneecap	Pit cars.
Catalpa mine, Gallup, N. Mex.	June 7, 1900	Chas. Bren	Right leg mashed	Do.
Crown Point, Gallup, N. Mex.	Jan. 24, 1900	Al Bernasco	Fracture of right arm	Kicked by a mule.
	June 6, 1900	Antone Kowlovie	Lacerated foot	Fall of rock.

RECORD OF NONFATAL ACCIDENTS.

BLOSSBURG MINES.

July 28, 1899.—Joe Skiles, a helper on machine, an American, was injured by fall of rock in No. 6 mine. A piece of rock fell from the roof without warning and fractured his collar bone.

August 10, 1899.—Raphael Avolio, an Italian miner, age about 40, was injured in No. 6 mine, in room No. 10, on No. 13, left entry. The injured man was standing on an empty car trying to take down a piece of rock from the roof; more of the rock was loose than he suspected and some of the rock fell on him, causing a compound fracture of leg.

August 28, 1899.—Odie Williams, colored American, age 14, was injured in No. 6 mine, in the diagonal entry, by a fall of rock. A piece of rock slipped from the pillar while he was sitting down, hitting him and causing a cut on right leg.

September 4, 1899.—Thomas Lark, an Englishman, 26 years of age, was injured at No. 6 mine. He was riding the trip as brakeman, with instructions to jump off at a point called the frog. He rode past this point, where the cars are apt to jump. His left foot caught between the bumpers and was crushed.

September 13, 1899.—Frank Owens, a negro, age 32 years, a miner, was injured in No. 6 mine, in room No. 5, on the first right entry. He was running from a piece of sliding rock and struck his shoulder against a car, dislocating his shoulder.

September 13, 1899.—Camilo Giron, a Mexican miner, 40 years of age, was injured in No. 6 mine, in room No. 11, on the fourth left entry. A piece of rock fell from roof close to face of coal, where it was impossible to timber, and bruised his back.

September 13, 1899.—A. Belaskes, a Mexican miner, age 35 years, was injured in No. 6 mine, in room No. 15, on the first left entry. A piece of rock fell from the roof, which was reasonably well timbered, causing a slight bruise on shin.

January 11, 1900.—Frank Devyak, an Austrian miner, age 38, was injured in No. 6 mine, in room No. 7, on No. 1 entry. A "pot" of rock, 3 feet square, 18 inches thick, fell while he was at work, causing fracture and dislocation of spinal cord.

March 29, 1900.—Jose Cacios, a Mexican miner, age 34, was injured in No. 6 mine, in room No. 6, on No. 1 entry. A "pot," or bell-shaped rock, fell near face of coal, dislocating right hip.

May 10, 1900.—Andrew Shields, a negro miner, age 35 years, was injured in No. 4 mine, on the old Blossburg main entry. A piece of rock fell from the roof, breaking his right leg below the knee.

COOK & WHITE MINE.

September 22, 1899.—Thomas Foster, an Englishman, under-ground foreman, 48 years of age, was injured in the Cook & White mine, at the top of No. 3 plane, on No. 2 right cross entry. He had his hand cut off by the bull wheel at the top of the plane. He had his hand on the rope while the engine was in motion, which pulled his hand into the bull wheel and cut it off below the knuckles, leaving thumb on.

LUCAS MINE.

September 25, 1899.—W. H. Wake, an Englishman, miner, age 28 years, was injured in the Lucas mine in room No. 9, on the first dip plane on the fourth right entry. He was injured by a fall of rock, causing compound fracture of left leg, junction of lower and middle third.

October 5, 1899.—Thomas Greseuti, an Italian miner, age 40 years, was injured in the Lucas mine in room No. 7, on the fourth right entry, by a fall of coal, causing compound dislocation of left ankle joint.

AYERS MINE NO. 1.

December 1, 1899.—John Brunett, an Englishman, miner, age 45 years, was injured in Ayers mine No. 1, on the first right entry. A piece of rock in roof, which had been repeatedly sounded and seemed secure, suddenly gave way while he was working underneath it and injured him about the hips.

December 5, 1899.—Albert Triftriner, a German miner, age 35 years, was injured in the Ayers mine No. 1, on the first left entry, by a fall of coal which he was undermining, breaking his collar bone.

December 16, 1899.—Demasio Trujillo, a Mexican laborer, 22 years of age, was injured in the Ayers mine No. 1. Had his kneecap broken and received wounds by being run over with the pit car.

GALLUP MINE.

August 22, 1899.—Fred Baugh, an American miner, age 20 years, was injured in the Gallup mine, in room 7, on No. 11, right entry, by a fall of coal. Coal fell at the face of the room, causing contusions and lacerations of leg and fracture of the small bones of foot.

February 16, 1900.—John Polinski, Austrian miner, age 35 years, was injured in the Gallup mine, in room 24, on No. 11, right entry, by fall of rock, causing badly contused leg (right leg) from knee to foot, ankle being also contused badly; no fracture, however.

March 29, 1900.—John Buckley, an American driver, was injured in the Gallup mine on No. 11, right entry, by being run over by a pit car, causing contused lacerated wound of left foot, with fracture of two of smaller bones of foot and first toe.

May 12, 1900.—James Love, an American miner, age 27 years, was injured in Gallup mine, in No. 11, right entry, by fall of coal, causing contused, lacerated wound, with partial fracture of the small bones of right leg in lower part, and ankle considerably bruised.

June 2, 1900.—John Sheridan, an American, driver, was injured in the Gallup mine on No. 11, right entry, by a runaway trip of cars. He fell on the rail and was caught, causing fracture of patella, right (kneecap), and also various contusions on same leg.

June 6, 1900.—Joseph Cortese, an Italian miner, 37 years of age, was injured in the Gallup mine, in room No. 28, on No. 15, left entry, by fall of coal, causing compound fracture of both bones of the right leg below the knee, with very severe lacerations and contusions.

CATALPA MINE.

June 7, 1900.—Charles Breu, a Russian miner, 39 years of age, was injured in the Catalpa mine, on entry No. 1, by being run over by a pit car, which mashed the bones of his right leg below the knee and soft tissues, causing amputation.

CROWN POINT MINE.

January 24, 1900.—Al Bernasco, an American, driver, 25 years of age, was injured in the Crown Point mine by being kicked by a mule, causing partial fracture of right forearm.

June 6, 1900.—Antone Kowlovie, an Austrian miner, 19 years of age, was injured in the Crown Point mine, in room 24, on No. 8 entry, by a fall of rock, causing contused, lacerated right foot and toes, 3 toes mashed to such an extent that they were amputated.

LAWS GOVERNING THE WORKINGS OF COAL MINES IN THE TERRITORIES.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in each organized and unorganized Territory of the United States wherein are located coal mines the aggregate annual output of which shall be in excess of one thousand tons per annum, the President shall appoint a mine inspector, who shall hold office until his successor is appointed and qualified. Such inspector shall, before entering upon the discharge of his duties, give bond to the United States in the sum of two thousand dollars, conditioned for the faithful discharge of his duties.

SEC. 2. That no person shall be eligible for appointment as mine inspector under section 1 of this act who is not either a practical miner or mining engineer, and who has not been a resident for at least six months in the Territory for which he shall be appointed; and no person who shall act as land agent, manager, or agent of any mine, or as mining engineer, or be interested in operating any mine in such Territory shall be at the same time an inspector under the provisions of this act.

SEC. 3. That it shall be the duty of the mine inspector provided for in this act to make careful and thorough inspection of each coal mine operated in such Territory, and to report at least annually upon the condition of each coal mine in said Territory with reference to the appliances for the safety of miners, the number of air or ventilating shafts, the number of shafts or slopes for ingress or egress, the character and condition of the machinery for ventilating such mines, and the quantity of air supplied to same. Such reports shall be made to the governor of the Territory in which such mines are located and a duplicate thereof forwarded to the Secretary of the Interior, and, in the case of an unorganized Territory, directly to the Secretary of the Interior.

SEC. 4. That in case the said mine inspector shall report that any coal mine is not properly constructed or not furnished with reasonable and proper machinery and appliances for the safety of the miners and other employees, it shall be the duty of the governor of such organized Territory, it shall be the duty of the Secretary of the Interior to give notice to the owners or managers of said coal mine that the said mine is unsafe, and notifying them in what particular the same is unsafe, and requiring them to furnish or provide such additional machinery, slopes, entries, means of escape, ventilation, or other appliances necessary to the safety of the miners and other employees within a period to be in said notice named; and if the same be not furnished as required in said notice, it shall be unlawful after the time fixed in such notice for the said owners or managers to operate said mine.

SEC. 5. That in all coal mines in the Territories of the United States the owners or managers shall provide at least two shafts, slopes, or other outlets, separated by natural strata of not less than one hundred and fifty feet in breadth, by which shafts, slopes, or outlets distinct means of ingress and egress shall always be available to the persons employed in said mine. And in case of the failure of any coal mine to be so provided, it shall be the duty of the mine inspector to make report of such fact, and thereupon notice shall issue, as provided in section four of this act, and with the same force and effect.

SEC. 6. That the owners or managers of every coal mine at a depth of one hundred feet or more shall provide an adequate amount of ventilation of not less than fifty-five cubic feet of pure air per second, or thirty-three hundred cubic feet per minute, for every fifty men at work in said mine, and in like proportion for a greater number, which air shall, by proper appliances or machinery, be forced through such mine to the face of each and every working place, so as to dilute and render harmless and expel therefrom the noxious or poisonous gases; and all workings shall be kept clear of standing gas.

SEC. 7. That any mine owner or manager who shall continue to operate a mine after failure to comply with the requirements of this act and after the expiration of the period named in the notice provided for in section four of this act, shall be deemed guilty of a misdemeanor, and shall be fined not to exceed five hundred dollars.

SEC. 8. That in no case shall a furnace shaft be used or for the purposes of this act be deemed an escape shaft.

SEC. 9. That escape shafts shall be constructed in compliance with the requirements of this act within six months of the date of the passage hereof unless the time shall be extended by the mine inspector, and in no case shall said time be extended to exceed one year from the passage of this act.

SEC. 10. That a metal speaking tube from the top to the bottom of the shaft or slope shall be provided in all cases, so that conversation may be carried on through the same.

SEC. 11. That an approved safety catch shall be provided and sufficient cover overhead on every carriage used in lowering or hoisting persons; and the mine inspectors shall examine and pass upon the adequacy and safety of all such hoisting apparatus.

SEC. 12. That no child under twelve years of age shall be employed in the underground workings of any mine; and no father or other person shall misrepresent the age of anybody so employed. Any person guilty of violating the provisions of this section shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not to exceed one hundred dollars.

SEC. 13. That only experienced and competent and sober men shall be placed in charge of hoisting apparatus or engines; and the maximum number of persons who may ascend or descend upon any cage or hoisting apparatus shall be determined by the mine inspector.

SEC. 14. That it shall be lawful for any inspector to enter and inspect any coal mine in his district and the work and machinery belonging thereto at all reasonable times, but so as not to impede or obstruct the workings of the mine, and to make inquiry into the state of the mine, works, and machinery, and the ventilation and mode of lighting the same, and into all matters and things connected with or relating to the safety of the persons employed in or about the same, and especially to make inquiry whether the provisions of this act are complied with; and the owner or agent is hereby required to furnish means necessary for such entry, inspection, examination, and inquiry, of which the said inspector shall make an entry in the record of his office, noting the time and material circumstances of the inspection.

SEC. 15. That in all cases of fatal accident a full report thereof shall be made by the mine owner or manager to the mine inspector, said report to be in writing and made within ten days after such death shall have occurred.

SEC. 16. That as a cumulative remedy, in case of the failure of any owner or manager of any mine to comply with the requirements contained in the notice of the governor of such Territory or the Secretary of the Interior, given in pursuance of this act, any court of competent jurisdiction, or the judge of such court in vacation, may, on the application of the mine inspector in the name of the United States and supported by the recommendation of the governor of said Territory or the Secretary of the Interior, issue an injunction restraining the further operation of such mine until such requirements are complied with, and in order to obtain such iujunction no bond shall be required.

SEC. 17. That wherever the terms "owner" or "manager" is used in this act, the same shall include lessees or other persons controlling the operation of any mine. And in case of the violation of this act by any corporation, the managing officers and superintendents, and other managing agents of such corporation, shall be personally liable and shall be punished as provided in the act for owners and managers.

SEC. 18. That the mine inspectors provided for in this act shall each receive a salary of two thousand dollars per annum and their actual traveling expenses when engaged in their duties.

SEC. 19. That whenever any organized Territory shall make or has made provision by law for the safe operation of mines within such Territory, and the governor of such Territory shall certify said fact with a copy of the said law to the Secretary of the Interior, then and thereafter the provisions of this act shall no longer be enforced in such organized Territory, but in lieu thereof the statute of such Territory shall be operative in lieu of this act.

Approved March 3, 1891.

INSTRUCTIONS AND RULES.

[Under which the Cerrillos Coal Railroad Company mines are to be governed, and all fire bosses will observe the same.]

First. Do not remain off of duty without giving the foreman due notice, so that he can put a man in your place.

Second. On beginning your shift's work your regular daily route will be: Commencing at mouth of slope, travel to face, and return from lower entry in slope to the upper entry in same, making regular travel in all air courses, and examine all places, including abandoned as well as working places in each entry, with Davy safety lamps or such other improved lamps as may be in use at the time.

Third. If you find the brattice or canvas shot down or damaged, repair it at once, so as to conduct the air to the face of the workings as soon as possible, and report in every instance where canvas is shot down to the foreman.

Fourth. Report in writing all places where gas is found, also verbally, to foreman.

Fifth. If air courses are obstructed in any way by water or rock, etc., report same in writing and verbally to foreman, that he may remedy it at once.

Sixth. Where roof of air course is bad and looks dangerous and should be timbered or taken down, report same daily in writing and verbally to foreman.

Seventh. Do not allow any man to go into his place with a naked light where standing gas is found or being generated freely. Give him a locked safety lamp and instruct him to use it instead of a naked light until further advised by you. Any person that you find disobeying this rule report same to foreman at once, and the miner so disobeying will be discharged from the employment of the company.

Eighth. If you should find a large quantity of gas at any time in the mine between shifts, report same at once to foreman, and do not allow the men to go forward on the slope farther down than lamp house, and the foreman will know from your report how to instruct further.

Ninth. Quantities of gas found in places on account of brattice or canvas shot down should always be removed by the fire boss, and not allow the men to enter the place under any consideration until the gas is removed.

Tenth. Instruct men who are working with safety lamps to brush all gas from their places before firing shots.

Eleventh. Any fire found in the mine from shot firing or otherwise must be put out promptly, and call for assistance from any point if you are unable to extinguish it yourself.

Twelfth. Examine and clean all safety lamps thoroughly after each shift's use, and do not allow any defective lamps to be taken from the lamp house.

Thirteenth. Any lamps that are damaged by any person using them, or if they fail to return them after the expiration of each shift, report same to foreman, and damages will be charged against them.

Fourteenth. Report all places to foreman where you think there is not a sufficient flow of air traveling to prevent the accumulation of gases.

Fifteenth. Travel the main return-air ways daily without fail, and see that same are in perfect condition.

Sixteenth. Put the danger mark (× ×) at the entrance of all places that contain any standing gas.

RULES GOVERNING THE CERRILLOS COAL RAILROAD COMPANY MINE FANS.

First. The fireman will attend to the fans when the engineers are off duty.

Second. The engineer when on duty will have full charge of the fans and see that they are properly attended to.

Third. On commencing the shift's work visit the fans and see whether they are in good order or not.

Fourth. If you find any of the fans in bad order, notify the master mechanic at once.

Fifth. Do not stop the fan for any slight adjustment while men are in the mine.

Sixth. If either fan should get out of order so that it is necessary to stop it, close the trap door near the fan immediately after stopping the fan, and open trap door immediately when the fan is started up again.

Seventh. Notify the foreman before you stop either or both of the fans.

Eighth. Do not stop both fans at one time while men are in the mine unless you see that they will be totally destroyed by continuing to run them, and not then until you notify the foreman to get the men out of the mine.

Ninth. If a sudden breakdown should take place or you should find one of the fans stopped, notify the foreman at once, then close the trap door, and notify the master mechanic.

Tenth. In case of breakdown occurring to either of the fans, and the master mechanic is not close at hand, the engineer and fireman must do everything within their power to get the fan in operation again as soon as possible.

Eleventh. Fans are to be kept speeded as per verbal instructions given to you from time to time by the master mechanic or superintendent.

Twelfth. Visit the fan every hour and notice if all the working parts are in good order.

Thirteenth. Notice the speed of the fan every thirty minutes.

Fourteenth. If anything occurs to the boilers or steam-pipe connections, or if a sufficient quantity of steam can not be kept up for both fans and hoisting plant, stop hoisting till such time as you can recover and maintain the usual pressure of steam.

Prices paid for labor, mining coal, etc., by the Crescent Coal Company, Gallup, N. Mex.

Mining coal, per ton of 2,000 pounds, screened	$0.70
Driving entry, per yard	2.00
Room turning	4.00
Crosscut, per yard	1.50
Timbers, per set	.50
Company men, underground, per day	3.00
Boys, attending to doors, per day	1.00

Engineers, per month	$80.00
Boiler man, per day	2.25
Tipple men, per day	3.00
Blacksmiths, per day	3.00
Blacksmiths' helpers, per day	2.50
Carpenters, per day	3.00

Prices of powder and supplies for miners, Crescent Coal Company.

Powder, per keg	$4.00
Lamp oil, per gallon	1.25
Lamp cotton, per ball	.05
Squibs, per box	.25

Prices paid for labor, mining coal, etc., by the Cerrillos Coal Railroad Company, at Madrid, N. Mex.

Mining coal per ton of 2,400 pounds mine run:	
Cook & White	$0.70
Lucas, screened	.90
Driving main entry, per yard	3.00
Driving back entry, per yard	1.75
Driving crosscuts, per yard	1.50
Driving main slope when in natural coal, per yard	6.00
Driving main slope when in faults or solid rock, per yard	9.00
Driving raised planes, per yard	1.75
Turning rooms off entry and driving room 30 feet	8.00
Setting rough 7-foot timbers	1.00
Setting timbers over 7 feet in length	2.00
Setting 7-foot props	.07
Wages paid:	
Pit bosses, per day	3.00
Fire bosses, per day	3.00
Tracklayers, per day	2.75
Company timbermen, per day	2.75
General company men, per day	2.60
Single mule drivers, per day	2.60
Team drivers, per day	2.75
Rope riders, per day	3.00
Car couplers, per day	2.75
Assistants to company men, per day	2.00

Prices of powder and supplies for miners of the Cerrillos Coal Railroad Company.

Powder, per keg	$2.60
Lamp oil, per gallon	.85
Lamp cotton, per ball	.05
Squibs, per box	.25

MINER'S ANNUAL CONTRACT.

GALLUP, NEW MEXICO.

This agreement, made this ——— day of ———, A. D. 189—, between the CRESCENT COAL COMPANY, of the first part, and ——— ———, of the second part

Witnesseth, that said party of the second part has agreed, and by these presents does hereby agree, to enter the employment of the said party of the first part as a ———, to commence on the —— day of ———, A. D. 189—, and continue thereon until ———, 189—, and to abide by and to adhere to and observe the rules and regulations set out and printed on the back hereof, numbered one to twenty-five, inclusive, and which are hereby made a part of this contract, to the like extent as if herein written, and in addition to abide by and observe all other rules and regulations as may be adopted from time to time by said coal company, party of the first part, by and with the consent of the party of the second part, for the purpose of regulation of mining and other employment in and about the coal mines and property of said coal company, party of the first part.

The said party of the second part further agrees to keep his room or working place in good order and repair, well secured and propped; and, also, that if the said party of the second part should at any time deem his room unsafe and insecure by reason of a neglect or failure to deliver props, he shall at once cease work in said room or working place, and shall not resume work therein until first suitable props have been delivered and he has made his room secure; and, also, that he will not be absent from his employment hereunder without leave, except in case of sickness or other unavoidable contingency that will prevent him from work.

The party of the first part agrees to furnish at the mouth of the room the requisite material, rails, props, and supplies to keep said room in good working order, after party of the second part has selected the same and placed his number thereon.

The party of the first part agrees to pay the party of the second part for each ton of coal mined by him and delivered on the cars, as follows, less all deductions, set-offs, and counter claims due at date of payment: ——— cents per ton from ———, 189—, to ———, 189—, all coal to be free from rock, bony, or other avoidable impurities.

The party of the first part agrees to pay the party of the second part ——— dollars for each day, month, the party of the second part may be employed by the party of the first part, less all deductions, set-offs, and counter claims due at date of payment, from ———, 189—, to ———, 189—.

All coal to be weighed before screening, 2,400 pounds, or such other amount run of mine as will make 2,000 pounds of screened coal over present screens.

Said first party hereby reserves the right and privilege of closing its mines at any time, or of reducing the number of employes by discharge of all or such of them, including said second party, as the superintendent, or the person having charge of the mines for the time being, may think proper. All payments hereunder to be made on regular pay day, and in compliance with the rules and regulations above named; and pay day is hereby fixed for and on the Saturday nearest the twenty-fifth day of each month, when and at which time all wages or moneys that may have been earned during and in the calendar month next prior to such pay day shall be paid, less all moneys owing said party of the first part on any account whatever.

It is hereby expressly agreed and understood by the party of the second part, that should he become a tenant of the party of the first part during the term of his engagement, then in case of the termination of this contract, either by his discharge from the employ of the said first party, or in any other way, the term of such tenancy shall at once cease and be determined without notice, and he will vacate the premises occupied by him, upon verbal notice of the agent or superintendent of the said first party, written notice to quit being hereby expressly waived, and on failure so to do will be deemed guilty of forcible detainer of such premises, and that he will not be entitled to demand or receive any part of the wages due him for labor performed (should the party of the first part so elect) until such premises are vacated and the keys thereof delivered at the office of said first party.

And the party of the second part further agrees that he will not stop work, leave the employment of said party of the first part, or join or become a party to, either directly or indirectly, any strike or combination for the purpose of obtaining, or the intent of which is to obtain from, or cause the company, party of first part, to pay their miners or other employees an advance of wages, or pay beyond what is specified in this or their contract, nor for any other cause whatever. Nor will he in any manner aid, abet, or countenance any such strike, combination, or scheme whatever, during the time specified in the first clause of this contract. And if the said party of the second part at any time shall violate any of the provisions of this contract in this regard, he shall thereby forfeit all claim for coal prior thereto mined or labor performed, and not paid for, and the said first party shall be fully released from all liabilities on account of this contract, for coal mined or labor performed by the said party of the second part.

For and in consideration of the foregoing agreements, the company, party of the first part, hereby covenants and agrees that it will not join any combination with other companies, or be a party, either directly or indirectly, for the purpose of reducing the rate of wages of the party of the second part below the sum specified in this contract. Nor will it in any manner aid, abet, or countenance any combination or scheme whatever, that has for its purpose any such object or design during the time specified in the first clause of this contract. And if the said party of the first part shall violate any of the provisions of this contract in this regard it will thereby forfeit a sum of money not to exceed fifty ($50) dollars as a penalty to the said party of the second part. Party of the second part, also, agrees to accept said sum of ($50) in full for any damage he may sustain by any violation of the provisions of this clause of this contract, and, on receipt of same, waives all further claims for damages against party of the first part.

In witness whereof the said parties have hereunto set their hands and seals this day and year first above mentioned.

CRESCENT COAL COMPANY.
By ——— ———,
Agent or Superintendent.

——— ———, *Witness.*
(Signed in duplicate.)

SHEEP HUSBANDRY.

SHEEP SANITARY BOARD OF NEW MEXICO,
July 10, 1900.

SIR: In compliance with your request we beg leave to submit report of the sheep sanitary board of New Mexico from June 30, 1899, to June 30, 1900.

Owing to the drought which prevailed throughout the Territory during the first half of the year 1899, referred to in our report to you of last June, the increase was comparatively small, in some sections as low as 25 per cent. It commenced raining, however, in June, and the lambs raised were in size and quality up to the average of other years.

In August, 1899, the board issued an order for general dipping, the dipping to be repeated before the 15th of December, and instructions were sent to our inspectors to see that this order was carefully complied with. All flocks were dipped in compliance with that order, and the sheep went into the winter in better condition than for a number of years past. The winter was exceedingly mild and the loss insignificant, and coming into the spring in such splendid condition the increase has been correspondingly large.

Drought prevailed in California, Arizona, and parts of Texas during the last year, and in consequence many sheep were brought into the Territory from those States, the number so brought in from June 30, 1899, to June 30, 1900, being 57,415.

The number of sheep leaving the Territory during the same period was 479,430.

The board has sent to all sheep growers in the Territory copies, in both English and Spanish, of the order promulgated by the Department of Agriculture as to the dipping of sheep and prescribing formulas. We have also been corresponding and cooperating with the Bureau of Animal Industry of the Department of Agriculture, and the Government now has an inspector in the Territory. During the months of September to January, both inclusive, there will be in New Mexico a corps of United States inspectors, charged with the duty of seeing that no sheep leave the Territory which are affected with scabies, and their assistance and cooperation will add to the efficiency of our work and greatly facilitate the enforcement of our orders and regulations. This will greatly increase the reputation of our lambs in the markets and materially assist in stamping out the disease of scabies.

On June 7 the board met and sent out a circular order, in English and Spanish, to all sheep growers, requiring all sheep affected with scabies to be dipped twice before August 1, 1900, under a penalty of a fine of one cent per head, and also notifying the growers of the intention of the General Government to station inspectors in this Territory.

During the year the board recovered and returned to their owners some 200 head of stray sheep and over 2,300 head of stolen sheep. It is proper, however, in connection with the large number stolen, to state that nearly all were stolen from one party, and that entirely through the efforts of our inspectors the fact that such sheep were so stolen was discovered, the thieves arrested, and the sheep returned to their proper owners. Owing to the fact that the board has a number of inspectors in each county, who constantly keep on watch for sheep thieves and stolen or strayed sheep, there has been but very little loss from such depredations.

The estimated number of sheep in the Territory taken from data in the office of board is 3,500,000.

The board has now about 45 range and shipping inspectors.

The outlook for the sheep business, the greatest of our Territorial industries, was never brighter than it is at the present time.

All of which is respectfully submitted.

SOLOMON LUNA, *President.*
HENRY F. LEE, *Secretary.*

Hon. M. A. OTERO,
Governor of New Mexico, Santa Fe, N. Mex.

IRRIGATED EGYPTIAN CORN IN PECOS VALLEY.

IMPORTANT ORDER.

ALBUQUERQUE, N. MEX., *August 19, 1899.*

To the Sheep Growers of the Territory of New Mexico:

You are hereby notified that all sheep which have not been dipped since the 1st of June, 1899, must be dipped between now and the 15th of September, using one of the formulas prescribed by the United States Government as set out in the regulations below, or with the lime and sulphur formula heretofore prescribed by this board in its rules and regulations. You are also notified that all sheep will be required to be dipped again after the 15th of October and before the 15th of December, 1899.

Any sheep owner who fails or neglects to comply with this order will be subject to a fine of 1 cent for each and every head not so dipped, and the respective inspectors for the various counties have been ordered to strictly enforce this order and to collect such fines, and to have all sheep not so dipped as above ordered dipped at owner's expense. And in event of any flock still showing scab after having been dipped twice, the dipping must be continued until the scab is entirely cured.

The circular from the United States Department is as follows:

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., July 20, 1899.

Whereas the shipment of live stock affected with any contagious, infectious, or communicable disease from one State or Territory to another, or from any State into the District of Columbia, or from the District into any State, is prohibited by the act of Congress approved May 29, 1884; and,

Whereas the contagious disease of sheep known as scabies, or scab, exists in many parts of the United States, due notice of which was given in the Department order of June 18, 1897; and

Whereas some of the preparations in which diseased sheep have been dipped by owners and stock-yard companies with the object of destroying the contagion and making legal the shipment of said sheep in interstate trade have proved inefficient, and said sheep have disseminated the contagion notwithstanding such treatment; and

Whereas the damage and losses from scabies in sheep have been in some sections very heavy and discouraging to those engaged in the sheep industry:

It is ordered that from and after August 10, 1899, no sheep affected with scabies, and no sheep which have been in contact with others so affected, shall be allowed shipment from one State or Territory to another, or from any State into the District of Columbia, or from the District into any State, unless said sheep shall have first been dipped in a mixture approved by this Department.

The dips now approved are—

1. The tobacco and sulphur dip, made with sufficient extract of tobacco to give a mixture not containing less than five one-hundredths of 1 per cent of nicotine and 2 per cent flowers of sulphur.
2. The lime and sulphur dip, made with 8 pounds of unslacked lime and 24 pounds of flowers of sulphur to 100 gallons of water. The lime and sulphur should be boiled together for not less than two hours, and all sediment allowed to subside before the liquid is placed in the dipping vat.

The owner of the sheep is privileged to choose which one of the above-mentioned dips shall be used for his animals. The Department will instruct inspectors to enforce due care in dipping sheep, but it assumes no responsibility for loss or damage to such animals, and persons who wish to avoid any risks that may be incident to dipping at the stock yards should see that their sheep are free from disease before they are shipped to market.

J. H. BRIGHAM, *Acting Secretary.*

The above regulation has recently been sent out by the United States and is now being strictly enforced, and all persons who fail to dip their sheep in exact accordance with the above regulation and in every manner fully comply therewith make themselves liable to the United States. Sheep men are notified and warned that they must strictly comply with the above regulations or they will be liable for damages.

SHEEP.

That "the hoof of the sheep is golden" has been demonstrated conclusively in New Mexico. Not even Australia, renowned the world over as the sheep-grower's paradise, can surpass New Mexico in its advantages as an ideal sheep breeding and wool growing section. The master hand of nature lavishly supplied our Territory with everything requisite for the successful pursuit of the sheep and wool industry. Nature endowed her with a peerless climate, neither hot nor cold, yet overflowing with sunshine from January to December, producing an atmosphere pure, ozone laden, and invigorating.

Her grazing lands extend from the plains and mesas to the top of the mountains, 10,000 feet high and bountifully covered with nature's choicest nourishment—gramma grass—which retains to a surprising degree its succulence and nutrition, even when only cured by wind and weather where it grew, with no assistance from mankind.

New Mexico's natural adaptability to sheep raising and wool growing was recognized by the Spaniards when they settled in this section about three hundred years ago, and they introduced large numbers of Merino sheep, which soon became the principal support of the people, furnishing them with food and raiment. Since that time this industry has a prominent position in the Territory, and it is to-day, as it has been for many years past, the most important and profitable in New Mexico. At this time there are owned in the Territory of New Mexico over 4,000,000 head of sheep, including the lambs grown this year, and, with the exception of one State possessing many similar advantages, our Territory towers above all other States and Territories in the number of sheep owned. The original stock was of the Spanish Merino type of sheep, and from lack of fine-bred rams to keep up and improve the strain they gradually deteriorated in character until they became a class unto themselves, displaying more of the characteristics of wild than of domestic animals. This trait developed in these sheep an ability to hunt for their food and enable them to subsist upon the scanty herbage and to live without water for many days, whenever conditions demanded or necessitated such modes of living. To-day, though improved by the best blooded stock to be found, they still possess these desirable characteristics.

The ewes make splendid mothers, caring for their lambs in a manner unequaled by any other breed of sheep and fearlessly defending them against attack by carnivorous wild animals. Their fecundity is also remarkable, and there is always a high percentage of lambs born, running up, in some flocks, over 100 per cent. Possessing such qualities, the increase and growth of the flocks is very rapid.

With their inherited and acquired knowledge of the sheep business, it would be difficult to find in any other section of the country a class of growers who can excel the New Mexican sheep men in the intelligent and economical management of their herds. In the improvement of their flocks they have experimented with different breeds, and the results have convinced our best sheep men that, for the conditions prevailing in New Mexico, the American Merino (the Delaine or Rambouillet types) is superior to all other breeds tried, and for the purpose of raising the standard of their sheep they have imported many fine-bred rams from Vermont, Pennsylvania, Ohio, and Michigan, for some of which as high as $100 per head was paid. The fine types are peculiarly suited to New Mexico, not simply because they are wool and mutton sheep, but for the reason that sheep in our Territory are grazed upon open ranges, and it is therefore essential that the sheep should possess the quality of herding together, and this is a leading trait of the Merino. Some of the long-wooled mutton breeds have been tried; but as these sheep will not stay "bunched" while feeding, it is very difficult to herd on the open ranges, and their decided tendency to wander off singly demands unceasing vigilance as well as hard and tiresome work on the part of the herders to hold them together, while the danger of loss from this cause is always serious, and these sheep are not well suited, therefore, for open-range grazing.

The Rambouillets, however, being of pure Merino descent, have inherited the flocking qualities of their ancestors, and they are a desirable class for range work. They are free from wrinkles, the wool produced is the finest quality, and they make excellent sheep for mutton purposes. We do not know whether it is due to the climate, to the gramma grass, or to the breeding, yet the fact remains that the mutton from New Mexico sheep possesses a sweetness, tenderness, and delicacy of flavor that place them easily in the front rank as choice mutton sheep. These qualities are so well known that "feeders" prefer them to any others, and the demand for them for feeding pens is so great that the growers are only partially able to supply it. Nearly a million head of sheep are annually taken to Colorado, Nebraska, Kansas, Missouri, and Illinois to be fattened for market.

Fort Collins, Colo., received large numbers of them, and the high price the feeders obtain for their New Mexico sheep demonstrates their superiority as mutton producers. The sheep make splendid feeders, as they will eagerly and greedily feed upon alfalfa, oats, corn, wheat screenings, etc., and take on weight very rapidly. Their faculty for adapting themselves to existing conditions makes them very desirable animals for feeders, as they are as much at home in the pens as they are upon the ranges. Sheep are also being fattened around Eddy, N. Mex., upon the sugar-beet pulp, and the sugar factory there is now able to advantageously dispose of what was formerly a waste product. Results from pulp feeding have been very satisfactory, particularly in the case of old ewes. The pulp furnishes them with an abundant supply of rich milk, and they are thus enabled to raise strong, well-developed lambs.

No business offers more profitable returns than does the sheep-raising and wool-growing business of New Mexico at the present time. The cost of running the sheep for a year is about 30 cents per head, which covers the expenses of herding, lambing, shearing, dipping, taxes, etc. The cost of shearing amounts to 2½ to 4 cents per head, according to the class of sheep shorn. The flocks are usually run in bands of 3,000 to 5,000. The people of New Mexico are unsurpassed in the management of sheep herds. It is no unusual thing for them to take sheep on shares, agreeing to return double the number of young and healthy ewes at the end of five years, with a considerable amount of wool annually; and often, after the five years, the party, on repaying, has double or treble the original number left for himself. The flocks require three men, or two men and a boy, and two or three dogs, and, when the same man has three or more flocks, another man of experience as overseer. Each flock also has a donkey and camp equipage.

which, with the rations, is carried on the donkey. The sheep are grazed from place to place within the range. The men and dogs constantly remain with the sheep during the whole year.

The following statement will briefly show about what can be done in the sheep and wool industry in the Territory of New Mexico. This is the way it works:

4,000 ewes, at $3 per head	$12,000	
Expenses for one year, say 50 cents per head	2,000	
Total cost		$14,00

At the end of one year you have:

3,800 ewes (5 per cent loss allowed), at $3	$11,400	
21,000 pounds of wool, at 12 cents	2,520	
3,100 lambs, at $2	6,200	
		20,120
Profit		6,120

Fifty per cent on the original outlay is a handsome return from any enterprise, and we believe we do not err when we reiterate that the people engaged in sheep husbandry in New Mexico are following the most profitable business in the West to-day, and as long as a protective tariff guards their interests the prospects and outlook for the future are certainly very bright for the sheep men, and the prosperity of the Territory is in a very large measure commensurate with the success enjoyed by those who are devoting their capital, brains, and energies to this important industry.

WOOL.

The wool clip of the Territory will amount to fully 18,000,000 pounds this year. A few years ago the average weight per fleece was very low, but now, owing to improved breeding, it will amount to a little over 5 pounds per head. The wool grown in New Mexico is of a diversified character, scaling from the finest Delaine-Merino to the coarsest carpet. The improvement in the grade of the wools has been coincident with the improvement in the sheep, and the growers are still exerting themselves in the laudable ambition of bringing their flocks and wool up to a still higher standard of quality. Many years are consumed in breeding the coarse-wooled stock up to the desired Merino plane, and so to-day, while clips are shorn that will compare favorably with any in the United States, the majority of them are not uniform in grade, but will contain fleeces producing sorts running from fine to carpet wool. The lambs of each succeeding year produce a finer grade of wool, and in time, if the growers continue to use fine Merino rams, the wool clip of New Mexico will be composed of fleeces uniform in grade and of choice character.

There is an ever-increasing scarcity of fine wool in the world, due to the crossing of the fine-wooled flocks with the large-framed, coarse, long-wooled breeds. The tendency to breed exclusively for a large carcass has amounted almost to a craze all over the globe, from which the New Mexican growers have been comparatively free. They have again displayed their intelligence by directing their efforts solely to the production of fine-wooled mutton sheep, and the certain advance of fine wools to a high point will amply reward them for their foresight and labors.

The following tables, furnished by one of the large wool-scouring plants situated at Las Vegas, indicate the diversity in the wool clips grown in the Territory:

	Per cent.
A clip of 40,000 pounds of grease wool yielded:	
Scoured fine wool	65
Scoured fine medium	35
A clip of 90,000 grease pounds yielded:	
Scoured fine and fine medium	97
Quarter-blood	2
Blanket	1
A clip of 77,000 grease pounds yielded:	
Scoured fine and fine medium	90
Quarter-blood	9
Blanket	1
A clip of 31,000 grease pounds yielded:	
Scoured fine medium	2
Three-eighths	59
Quarter-blood	17
Blanket	18
Carpet	4
A clip of 20,000 grease pounds yielded:	
Scoured three-eighths	43
Quarter-blood	31
Blanket	16
Carpet	10

There are many clips that will show a much greater percentage of the low sorts (blanket and carpet) than is indicated in the tables quoted above.

The production of such a vast quantity of wool has brought within our borders another important industry—the business of scouring wool as well as of sorting it and otherwise preparing it for the manufacturers' use. Three large plants have been erected at Las Vegas. There is also one located at Albuquerque. There is in addition to these a scouring plant at Trinidad, Colo., across the New Mexican line, which handles large quantities of wool grown in northern and northeastern New Mexico. The town of Eddy has also a large plant recently put into operation.

These scouring mills have been the prominent factor in securing for the growers full prices for their clips. The benefits they confer upon the sheep men are numerous. Their presence and anxiety to secure wool has developed a competition among buyers that has reacted to the growers' benefit. The scouring of wool at home results in a big saving in freight charges, as all the grease and sand carried by the wool is eliminated, and transportation charges are only paid on clean wool. They are a school for the growers, as they teach them the shrinkage of the wool and the percentage of the various sorts taken from it; and, as all wool is bought and sold on a scoured basis, it is very necessary that they should possess this information, as it enables them to dispose of their products intelligently and to good advantage. If wool is consigned to an Eastern commission house to be sold, the charges are less for handling scoured wool than for grease wool, the growers have more money to spend at home, and their support of the scouring mills keeps employed in New Mexico much capital and many hands. The benefits of scouring mills to a community are fully illustrated in the case of Las Vegas, which is to-day the best wool market in the Southwest, and wool is shipped to that point from the most distant parts of the Territory, the growers being attracted there by its excellent outlet for wool. If the grower sells his wool to an Eastern buyer in the grease, he has to pay the freight as well as the charge for scouring the wool, as he well knows, and if he can save the money paid for hauling the grease and dirt in his wool, it is certainly to his interest to do so. It is also better for the Territory to have this work done here, as it encourages an important industry here and adds to the wealth of New Mexico. That the conversion of the wool just as it comes from the sheep's back into the condition required by the manufacturers has been remunerative to the growers is demonstrated by the following letters which were received, with numerous others of similar import, by one of the leading scouring mills at Las Vegas, N. Mex.:

——— ———:

In reply to your letter of the 10th instant, I have to say that I want you to scour my wool, as you have done for many years.

I have learned by experience that the reputation of your company in the wool market of the East is such that wool sorted and scoured by it sells for the highest market price; and in regard to my wool, when you scour it, and I see the market quotations for scoured wools, I know exactly what it is worth, and I believe the owners of fine wool can realize more by scouring than selling in the grease. For instance, two years ago, when you scoured it, I realized, after all expenses had been paid, $1,668.48 over the highest price I was offered for it in the grease.

I often hear it asserted that in New Mexico and Arizona we can not raise such wool as is produced in Montana and Northern States, and it may be true; but, nevertheless, I have received for every clip you have scoured the past six years the same price, and I think I owe something to your company for the thorough manner it was sorted, scoured, and put up, and I am going to stay with you.

Yours, truly,

J. G. CLANCEY.

P. S.—I hope to have over 100,000 pounds this coming clip.

——— ———:

We are very well satisfied with the manner in which you handled our clip last year and the price you got for us. It is our intention to place this spring's clip, which will be in the neighborhood of 200,000 pounds, in your hands again, as we believe all fine wools should be handled through a scouring-mill, as there is a big saving in freight and in the commission charged for selling the wool. We are convinced that we can get more money from our clip in this manner than if it is handled or disposed of in any other way.

Yours, truly, McINTOSH & McGILLIVRAY.

The sheep business of New Mexico has also resulted in the establishment of another enterprise at home, viz, that of wool pulling and tanning. There are located at Las Vegas two wool-pulling plants, one of which is also engaged in the tanning of leather. The processes through which a sheep pelt goes from the time it is taken off the carcass until it is converted into leather are many and interesting. When the pelts are received by the puller they are soaked in tanks filled with clear, soft water. When the skin is thoroughly softened, the water is drained off, usually in hydro-extractors. If what is known as the sweating process is used, the pelts are then suspended from the tenterhooks in closed rooms called the sweat houses. Steam is introduced, and the chemical action produced by the heat upon the skin causes the wool to be easily removed from the skin after having been sweated for about forty-eight hours. The use of depilatories is largely supplanting the sweating method. In this case the flesh side of the pelt is painted with a solution of the depilatory. The pelt is folded and laid away for from five to twelve hours, according to the season of the year and the strength of solution, after which the wool can be pulled from the skin with great ease, the depilatory having destroyed or eaten the roots of the wool fibers. As the pullers remove the wool they sort it into different classes belonging to pulled wool, which are technically known as extras, fine super, A super, B super, and C super. The pelt from which the wool has been taken is now termed the "slat," and it is then put through the process of liming, beaming, bating, or drenching. At this stage, if the puller is also a tanner, the slat goes to the tanning department, whence it finally emerges as leather. There are about twenty different processes for tanning slats, the four principal ones being the chrome, the oil, the bark, and the alum. If the puller does not desire to tan the slats, he proceeds to pickle them, in which state they can be kept for a long period, or they may be sold to those who tan the slats only and do not engage in the preliminary work of pulling. The work of pickling is performed in order to preserve the slats in good condition for tanning when they are not tanned immediately after the bating process.

The location of these plants within the Territory supplies the growers with a splendid home market, just as the wool-scouring mills furnish him with an unsurpassed outlet for his wool clip. New Mexico pelts have an enviable reputation for their leather-making qualities. Eastern tanners prefer them to all others on account of their fineness of grain and toughness, and they are largely used in the production of imitation morocco and other leathers, as well as for glove stock, for which they are eminently suited. If the butchers and herders will exercise proper care in removing the pelt from the carcass and curing it afterwards, they can obtain fancy prices for them. Pullers and tanners have complained at times that excellent skins have been ruined for leather purposes by reason of careless skinning and handling in the primal stages, an objection that should and can be easily remedied by the exercise of intelligence and care on the part of those who skin the animals and prepare the pelts for shipment to the pullers.

GREAT MONEY EASILY MADE IN CATTLE AND SHEEP BUSINESS.

A number of lines of business in which large gains are now realized have been mentioned in different parts of this report. And what many are now doing many more could do, for one beauty about New Mexico is that an investment here is not simply one nail driving out another. Every department of industry and enterprise has abundant room for many additions, the newcomers doing as well as the old, and the old suffering no competition from the new. Were the stock investments of New Mexico doubled in value by the addition of new ranges and new animals, the old interests would not be damaged a particle, since the return on investment in this industry is determined by the condition throughout the nation. So with the production of wool and hides and pelts. For those having the means and somewhat of experience, the cattle or sheep business offers a field of almost limitless opportunity and vast profit, either in the purchase of present ranges or the development of others, should breeding be proposed; or in the purchase of lands and development of new ranches, should feeding and fattening be contemplated.

These enterprises require, of course, a considerable outlay of money in the purchases of stock and ranches, though the ranges are practically free, the location or development of water placing the surrounding unwatered lands at the use of the locator. But similar stock industries can not be entered upon elsewhere and to the same extent with less money, nor will the returns elsewhere be so satisfactory. Because of winter mildness, maintenance is less costly, and because of climatic excellence losses are fewer and increase is at a much larger ratio. The stockbreeders' Elysian fields lie in New Mexico.

Hon. Miguel A. Otero,
Governor, Santa Fe, N. M.

Dear Sir: I have the honor to report that the material results accruing to the cattle interests of New Mexico for the year ending June 30, 1900, have been the best experienced for at least a decade. The losses in range stock consequent to the extraordinarily severe winter of 1898 and 1899 were confined entirely to the poor and weak old cows that were unable to go far away from the watering places in search of pasture, and were always the first to be seen when stock was shown to intending purchasers, and invariably made a bad impression as to the quality of the bulk of the herd, so that their removal by the elements has proved to be very much in the nature of a blessing in disguise, so much more satisfactory do the herds appear without them. And further, if there were any germs of infectious disease lurking on the range, they were likewise destroyed. Not a single case of anything of the sort has been reported to this office since my last report, and the health of the cattle was never better.

From July 1 the season of 1899 was favorable to the stock interests, water everywhere, and grass well cured before frost; stock of all kinds were well prepared to go through the balance of the year without suffering. This followed by an unusually mild winter no appreciable loss was experienced. Throughout the greater part of the Territory the summer rains set in a month earlier than usual and have kept up until now, making the present one of the most favorable seasons for the stock interests ever known.

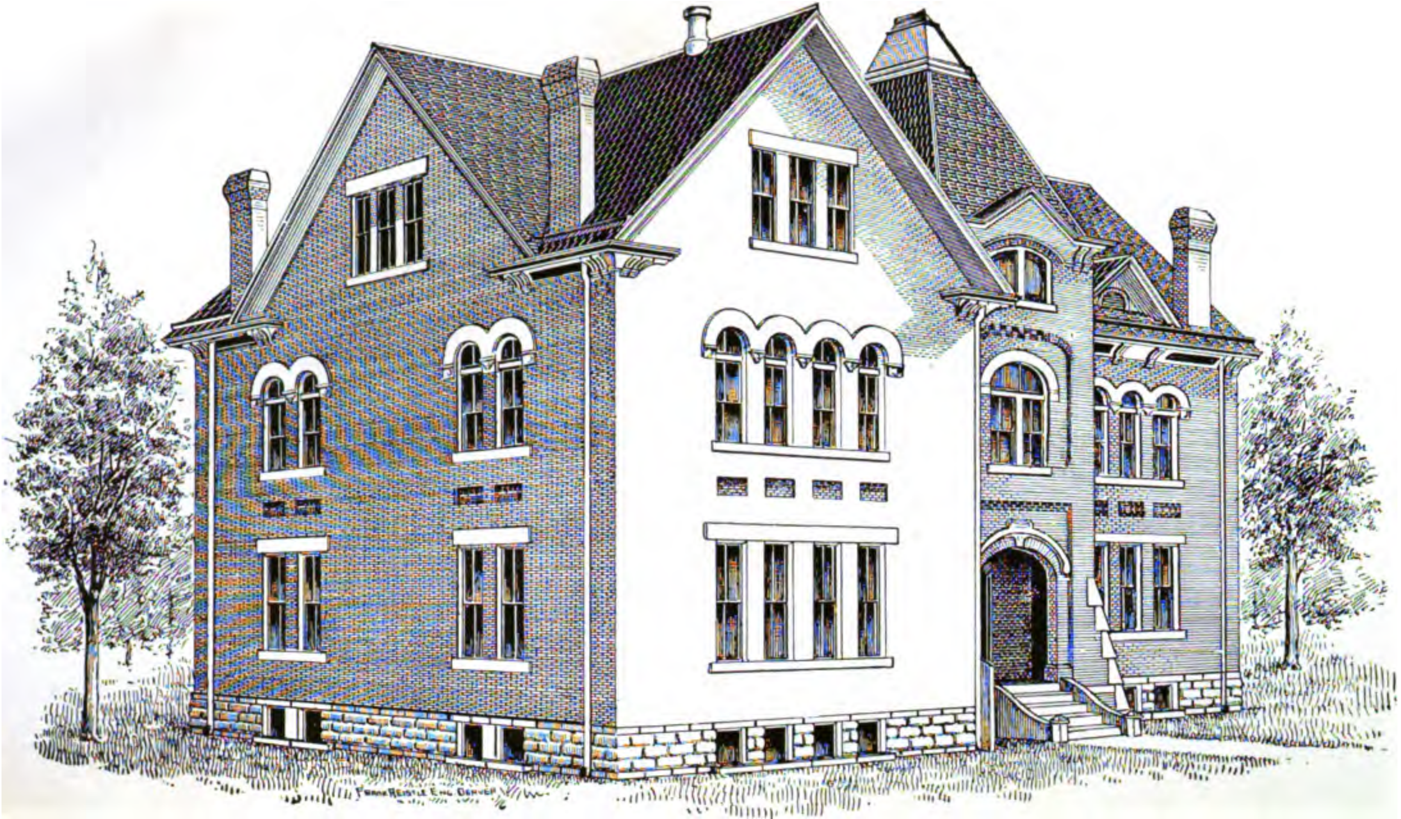
Inspectors report that the increase in the various sections of the Territory will run from 60 to 90 per cent of the breeding cattle, and that owing to the abundance and freshness of the pasture all will be saved and well grown, and that the improvement of grade over that of all previous years is especially noticeable. That the active demand for a well-bred yearling at $20 and the slow sale of a scrub at any price has been an object lesson to the nonprogressive cattleman that can not be disregarded if he continues in the business, and the production of a class of cattle of as high a grade as the vicissitudes of the range will with safety permit is now fully under way. That, in introducing new blood for the improvment in grade, the tendency is strongly to the Herefords, though many of our foremost cattlemen well qualified to judge, claim the first cross on our native stock should be on the Durham, to give shape, size, and bone, and the Herefords put in later to impress their well-known rustling qualities.

The demand for all classes of cattle has been strong. There have been sold and delivered since January 1, 1900, 86,470 head of cattle mostly one and two year old steers at from $15 to $20 per head for ones and $18 to $27 for twos, according to quality and accessibility. Threes and up are very scarce and can not be found in any great number in single hands.

There has also been a good demand for heifers and stock cattle, but in these classes not much trading has been done, their owners no longer being in financial straits in view of the outlook, preferring to hold them for their increase and the growth they will surely take on owing to the abundance and quality of the pasture at hand.

At this time of the year the question of the Kansas corn crop is a problem of great interest to the New Mexico stockman, for on it depends to a great extent the demand for the products of the range for the balance of the calendar year, and until that crop is assured, no reliable estimate can be made of the numbers that may be required for feeding to a finish. There are plenty of steers yet in the Territory that will be available for this purpose if the present indications for an immense corn crop in that State are realized.

Outside of the land grants the greater portion of the range in this Territory is on the public domain. The question of leasing these lands in large bodies is now being agitated mostly by the people living in States that have none within their borders. There is a great deal to be said on both sides of the question, but the sentiment that men are better entitled to the privilege of making homes for themselves and families wherever the conditions will permit it than that these lands shall be monopolized for the exclusive breeding of stock seems to prevail in this Territory.



NORMAL SCHOOL, SILVER CITY, N. MEX.

During the year ending June 30, 1900, 214,053 head, mostly steer cattle, were sold and removed from the Territory, amounting at current values to upwards of $4,000,000, and during the same period there were brought into the Territory to remain 13,095 head, of which 5,391 were from the Republic of Mexico.

All of which is respectfully submitted.

J. A. La Rue,
Secretary, Cattle Sanitary Board.

July 7, 1900.

FOREST RESERVES.

The forest reserves of New Mexico, two in number, the Pecos River and the Gila reserves, cover an area of 160 townships, or 3,701,040 acres. The Pecos River Reserve of 431,040 acres is situated north of the central part of New Mexico, partly in Santa Fe, San Miguel, and Mora counties. It was created to protect the head waters of the Pecos. Several ranges of mountains, running from north to south, and from 8,000 to 13,000 feet high, cover the reserve. The Gila Reserve, 3,270,000 acres, is located in southwestern New Mexico, in Grant and Socorro counties. It protects the head waters of the Gila River and its tributaries. The Mogollon, the San Francisco, the Tularosa, the Black, the Little, and the Diablo mountains are the most important mountain ranges on that reserve. The establishment of a third reserve in the Capitan and White mountains in Lincoln County, in southern New Mexico, is spoken of by departmental officials, and is intended to protect the head waters of the Bonito, Eagle Creek, Rindoso, and Rio Hondo. The area of this proposed reserve is to be 250,000 acres. There is also talk of establishing a reserve in the Zuñi Mountains in western Valencia County, in the western part of the Territory.

The 5,782 square miles covered by forest reserves in New Mexico is a magnificent domain. It is as large as Rhode Island, Delaware, and one-half of Connecticut taken together, an area that supports over 1,000,000 inhabitants, or fully five times the present population of this Territory. It is a domain which in lumber alone is worth great wealth. But on the reserves are also some of the largest and richest mineral deposits in New Mexico. Some of the best grazing lands are found on their mesas and hillsides. Good agricultural lands exist along the river bottoms, in the cañons, and in the valleys between the ranges. The ground cleared of forest growth makes very fertile farm land, as has been demonstrated in the Sacramento Mountains. There is an abundance of running water on these reserves, a higher average of rainfall than elsewhere in the Territory, and many natural reservoir sites which might have been utilized to reclaim thousands of acres of fertile but arid land.

The creation of forest reserves retarded and in some respects ended all prospects of utilizing for settlement some of the most desirable parts of all New Mexico. The lumber industry on the land included in the forest reserves, of course, has been destroyed.

The growth of agriculture and horticulture is out of question, for all land within the reserves has been withdrawn from settlement and much of the agricultural land already settled is being relinquished to the Government. The storing and utilization for irrigation purposes of the flood waters on the reserves at present can not be thought of. Mineral exploitation has been retarded owing to restrictions as to the use of timber, because food and other supplies had to be hauled a long distance and because railroads are not likely to be built, for the present at least, over public land that has been withdrawn from homestead entry. There remains only the stock industry, dependent upon good grazing, that might continue to make its home upon the forest reserves, but under present restrictions it also is doomed to be wiped out within a few years.

It will thus be seen that New Mexico lost heavily in prospective growth and wealth through the establishment of forest reserves. Nevertheless the people of the Territory acknowledge the great good (some of which, however, is still problematical) desired to be accomplished by forest reserves. It is readily seen that forests afford some protection to the head waters of streams. A continuous supply of water is furnished by the trees retaining the snow in the mountains until a late period of the summer season. The trees shade the banks of the river from the sun and prevent the rapid evaporation of the water. The withdrawal of the land from settlement prevents the diversion of the head waters of streams for irrigation purposes. The snow lying on the ground late in spring on forest reserves acts as a cover for the young growing shrubs and small growth of timber. The forest growth affords protection against the chilly blasts of frigid winds that sweep across the prairie. It also gives shelter to live stock and herders in time of storm. Last, and certainly not least, the forest reserves are ideal resorts in summer and excellent hunting and fishing ground at all times.

But all these aims can be attained and these benefits secured without burdensome, meddlesome, and unnecessary restrictions or total prohibition of grazing upon the reserves. The damage caused by the grazing of sheep and goats in wooded regions has been greatly exaggerated, and in some respects is imaginary. It certainly is small when compared with the benefit it confers upon the reserves and the material profit that it means to their owners and indirectly, also, to the Territory. In the first place the prohibition of the grazing of sheep and goats upon the reserves works untold hardship and is bringing material ruin to many settlers who were upon the land before it was set apart as forest-reserve ground. For many generations back their ancestors lived upon the same ground, and their herds and flocks are their sole wealth, accumulated through several centuries of hardships, danger, and exposure. Their capital and means of livelihood is the range round about them. They settled in those sections because they believed, and had cause to believe, that they would remain unmolested in their grazing privileges. Now, after such long undisputed possession, the United States Government steps in and evicts these settlers in the most heartless manner. The range beyond them outside of the forest reserve has been taken up by others or is valueless on account of drought or other untoward circumstances. The homes they have built and the wells they have drilled are worthless to them, for they must now sell their flocks and herds, if they can find a buyer, or they must allow them to perish, and then they themselves must leave the homes of their fathers to find means for making a livelihood elsewhere. The forests have existed for decades and so have the flocks and herds, and not until the present day have they been thought to interfere with each other

The sheep and goats have been the protectors of the forest. By nibbling short the grass and undergrowth they have created barriers against forest fires. Trees on the reserves, with some notable exceptions, are not at all dense in their growth, and forest fires could not spread unless by the grass and undergrowth. In addition, the presence of herders on the reserves aids in the quick detection and extinguishing of any incipient forest fires. The herders know that it is to their interest to assist in preserving the forest growth and extinguishing fires. They can be of great aid in that respect to the force of rangers, which, even if it were ten times its present number, would still be inadequate for reserves so vast that they cover 6,000 square miles. It is simply a matter of getting as much material benefit out of the forest reserves as possible without interfering with the purpose for which they were created.

So, while the people of New Mexico acquiesce willingly in the losses the Territory necessarily sustains by withdrawing such large areas of good land from homestead or desert-land entry and from purchase by settlers, they ask that the restrictions hedging in these reserves be not made unnecessarily severe; that the force of forest rangers be increased so that each ranger can give his attention solely to a limited area; that streams be restocked with fish and that game be protected; that the land not strictly forest land be again thrown open to entry, and that cattle, sheep, and goats be allowed to graze upon the forest lands, if necessary in limited number and within necessary regulations, but free of charge and without burdensome restrictions.

OFFICE OF SUPERINTENDENT OF FORESTRY,
Santa Fe, N. Mex., May 23, 1900.

MY DEAR SIR: I am in receipt of your communication of May 7, addressed to the superintendent of forest reserves, New Mexico, calling for a complete report of existing conditions on the two forest reservations in the Territory, viz, the Gila and Pecos. I have waited until now in order that this report might be made by the superintendent proper, Hon. W. H. Buntain, who has been away from his office since March 20 on a leave of absence, and who is thoroughly conversant with the work; but I am officially notified that Mr. Buntain has resigned, and that I am to remain in charge as acting superintendent until his successor is appointed. I therefore feel called upon to take up the matter of the report called for by you and give you such information as I have in my possession, which of course will be limited, for the reason that I have had charge of the office only since April 30, and the data from which my report is made is gathered from reports of forest supervisors on these reservations, and I shall attempt only general summary of the conditions.

First, as to the Gila River Reserve. The timber is in good and healthy condition, and the undergrowth, small pine, over the entire reserve is growing nicely, due in a large measure to the excessive precipitation which for the month of April, as reported by M. M. Mulhall, was 0.85 of an inch.

No fires of any consequence have been reported on this reserve since January, and specific instructions were issued in this office to-day, May 23, to Supervisors Langenberg and McClure, to so systematize their force of rangers as to preclude the possibility of any large fires this summer, which reorganization, it is hoped, will prove effective and accomplish the desired end.

The order excluding sheep and goats from this reservation was temporarily suspended by telegram from Honorable Commissioner-General of the Land Office, dated January 10, pending an investigation which the superintendent of forestry was directed to make at once. Because of ill health and subsequent resignation of Superintendent Buntain, this investigation and report has not been made, and will doubtless occupy the attention of the new superintendent at an early date. Meanwhile sheep and goats are grazing on this reservation.

This office is also in receipt of numerous petitions from settlers on the Gila River Reserve, for the elimination of townships 13, 14, and 15 south, ranges 19, 20, and 21 west, setting up the fact that the country embraced in this territory is a high, rolling mesa, cut up by low mountains and long draws and ravines, and contains no timber growth, except scattering scrub oaks and occasional small juniper and pine, and is not adapted to forest growth, and is in no sense a forest, or of such a nature as to become forest land, but is purely and solely high, dry, open, broken mesa land, adapted only to grazing purposes.

The honorable Commissioner, in letter of date April 3, has directed superintendent of forestry to go upon and personally examine and make a detailed report upon the requested elimination of said land, and I shall call the attention of the new superintendent to this order immediately upon his arrival.

In the matter of the Pecos River Forest Reserve, I would most respectfully report the forest, like that of the Gila, in splendid condition, and the undergrowth of small pine and all manner of vegetation in excellent condition for holding moisture, due in part to the fact that last year sheep and goats were excluded from the reservation, and the further fact that during the month of April the precipitation was the largest known on this reservation since the records have been kept by the local weather bureau at Santa Fe. The amount of snow that remained on the ground was the largest on record, total precipitation for the month of April being 2.10 inches.

No fires have occurred on the Pecos Reserve during the year of any consequence. The only timber depredations reported since 1st of March have been committed along the eastern border of the reservation, where the line of the reserve is not well marked. The trespasses have been small, and were reported to the Federal grand jury at Las Vegas last week by Forest Ranger Charles T. McGlone, who has charge of that part of the reserve.

By reason of an order which issued from the General Land Office April 17, 1900, all persons desiring to graze cattle and horses upon the reservations of New Mexico will be required to make application for the granting of such privilege, agreeing in their application to pay for pasturage such reasonable compensation as may subsequently be fixed by the honorable Secretary of the Interior, if their applications shall be approved. The number of cattle and horses admitted to graze during the grazing season for this year has, however, been limited and fixed as follows:

	Cattle.	Horses.
Gila River	200,000	5,000
Pecos River	40,000	600

All of which is most respectfully submitted.

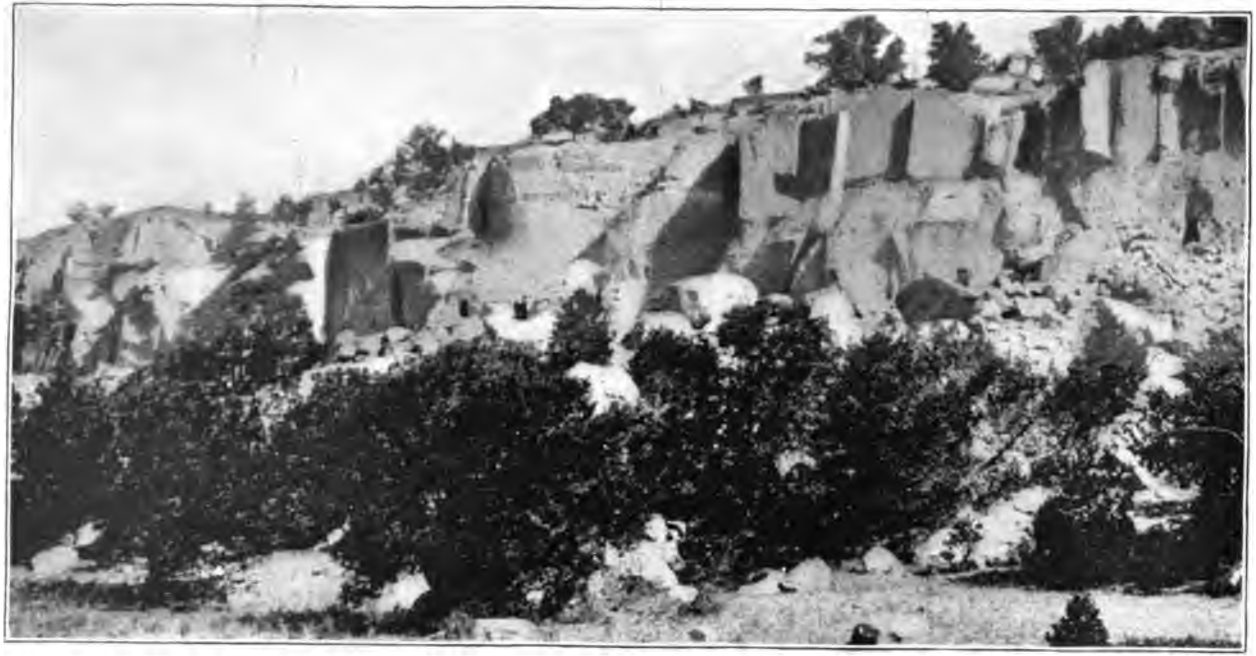
R. C. McClure,
Acting Superintendent.

Governor M. A. Otero, *Santa Fe, N. Mex.*

PREHISTORIC TIMES.

Among the Pueblos the houses were communal as well as the lands, the building consisting of from two to five stories, each successive one receding several paces from the face of the one immediately below it, and each entered only from above by means of scaling ladders let down or taken up for that purpose. These edifices were constructed of adobe (sun-dried bricks), cobblestones held together by adobe mortar, or matched stone without mortar, the numerous rooms being ceiled with beams covered with earth. Each village or community usually contains two or three of these buildings, which looked more like fortresses than dwellings, though indeed designed for both purposes.

One such structure at Weqwgi was 700 feet in circumference and contained 99 rooms. Pueblo Bonito was 544 feet long by 314 feet wide, with 300 apartments. The pueblo of Penasco Blanco was 1,700 feet long and comprised 112 rooms. Among the remains of the sacred city of Pecos are the ruins of the temple, which for ages preserved the holy fire of Montezuma. Its dimensions are 191 feet in length, 35 feet in breadth, and 50 feet in height, encompassed by walls 6 feet



HOMES OF THE CLIFF DWELLERS.

in thickness. The interior is divided into compartments, having cells, cisterns, and tanks, but the outworks and turrets are a mass of ruins.

The Taos pueblo, in the northern part of the Territory, is one of the finest specimens of these ancient dwellings to be found in modern use. There are two houses, on opposite sides of a small stream, between 300 and 400 feet long by about 150 feet wide, anciently connected by a bridge. They are five and six stories high, terraced from bottom to top, divided into numerous compartments, with entrance to each story, as above mentioned, by ladders giving access to trap doors in the roof. With these ladders drawn up at night and a sentinel stationed upon the housetop to give notice of approaching danger, the peaceful Pueblos could sleep in security, though surrounded by marauding hordes of bloodthirsty Apaches, Navajoes, and Utes. In these buildings at Taos about 800 men, women, and children, like one family and in apparently the greatest harmony, occupy the identical abodes used by their forefathers for generations prior to the birth of Columbus or that of his royal patrons.

Following is an interesting article upon a strange race of people known as the "cliff dwellers," long since vanished from the face of the earth, but enough traces are left to make scientists eager for further investigation of what was once the home of this now extinct people:

CLIFF DWELLERS.

Very important explorations have lately been made in the Santa Clara Cañon in regard to the famous cliff dwellers, which are visited every year by hundreds of people. This party of explorers measured the communal building of the ancient and abandoned cliff dwellers, and found it to be 300 by 400 feet, three stories high, and containing approximately 2,000 rooms. They excavated two rooms and found the walls in good state of preservation, with some evidence of building skill. They discovered considerable pottery beautifully decorated with geometrical designs and partly glazed, something unusual, as the pottery heretofore found was generally unglazed. Many turkey bones gave evidence that the ancient occupants knew the good points of the national bird. The turkey corrals were found to be small and connected with the living rooms by a low archway only high enough for a turkey to slip through. In the two rooms pipes of an unusual shape were found. One was in imitation of a prickly pear and the other of a cactus. There were evidences that the cliff dwellers grew tobacco, and the charred corn found proves that they also grew corn. There was evidence that the building had been deserted in haste and that the cliff dwellers had left nearly everything behind them. The most important discovery, however, was that of nine skeletons almost complete. The skulls show that the cliff dwellers were not Indians, but were allied to the Caucasian race. The back of the skull is flat, but the forehead is well developed. The chin is strong, and the appearance of the face must have been long, slim, and intellectual. They had beautiful teeth, but, strange to say, instead of incisors they had grinders, which, according to the theory of evolution, is proof that they were vegetarians for many ages before being driven out by invaders or by some calamity. One of the skulls had been pierced by an arrow on one side, while on the other it was fractured as if by a tomahawk. The man to whom it belonged had perhaps fallen while repelling an attack by the Indians. One femur measured 19½ inches, and the skeleton to which it belonged must have been between 7 and 8 feet high.

The burying places at Santa Clara have not been discovered yet, but it is known that the cliff dwellers were buried in a stooping position, with their heads between their knees and the feet pointing to a common center. Skulls were found with long red hair by this exploring party, and also monuments with inscriptions that resemble Chinese characters, while on the Gila River monuments were found that seemed to be of Egyptian origin. One well-known scientist in the party has made a study of the subject, and feels positive that the cliff dwellers belonged to another race than the Indian. It is believed that the dwellings are from 1,500 to 2,000 years old, and that the Santa Clara settlement was abandoned on account of the eruptions of the crater, not far from here, which threw out the immense lava fields that cover large areas to the west of the city of Santa Fe. The relics found include instruments used for dressing hides; pottery, some of the pottery being very large; skeletons, and other remains of the cliff dwellers.

These discoveries prove that long before Columbus set foot on the shores of the New World the valleys and plains of New Mexico were the seat of a civilization which has been the wonder of scientists and explorers; for ages unknown people contended for the possession of the lands and streams. Nation after nation of strange beings followed each other in conquest, and to-day, as above stated, evidences are to be found in the ancient settlements of their unknown inhabitants. The old pueblos in New Mexico are the homes of the descendants of the cliff dwellers, and the antiquarian will find enough of what is old beyond tradition, yet new to the nineteenth century, to keep him occupied for years in patient research. It is not necessary to go to Egypt or Persia to find ruins and relics of people who have passed from the face of the earth; they can be found right here in New Mexico and within easy reach of comfortable homes and hotels.

SANTA FE, N. Mex., *August 31, 1900.*

DEAR SIR: In compliance with your request, I inclose an article reviewing the discoveries lately made, and the theories put forth by those who have studied the subject in relation to the cliff dwellers and other prehistoric remains found in New Mexico.

Yours, respectfully,

PAUL A. F. WALTER.

Hon. M. A. OTERO,
Governor of New Mexico, Santa Fe, N. Mex.

New Mexico is a land of mysteries. It is a vast storehouse of antiquities, whose value to the scientific world has been recognized fully only of late years, although Humboldt already alludes to them in his writings. At every turn in this Territory the antiquarian encounters that old and yet ever new problem of humanity: "Whence art thou?" and its complement, "Whither goest thou?" Here, if anywhere, will be solved the problem of the identity of the first human settlers of this continent; here may some day be found the key to the secrets of the civilization of the Aztecs. But it will take years, perhaps centuries, of scientific research and study. These can be prosecuted only if the ruins and their contents, as they exist to-day, are protected from the hands of vandals and pot hunters. As most of the ruins are situated on public land, it is in the province of the National Government to say to the vandals: "Halt! This is the property of the United States and dare not be despoiled of its treasures!"

Scientists have occasionally visited some of the ruins of prehistoric times in New Mexico. They have even explored thoroughly one locality or the other, and then formulated theories to explain the presence of particular antiquities they saw and they studied. The difficulty has been to distinguish the early remains from the later remains in the same locality. There has been no general, no authoritatively uniform, no thorough research or comparative study made of the prehistoric remains in this Territory, such as can be carried on only under Government supervision and at Government expense, by men who are willing to devote a lifetime to the work.

No wonder, therefore, that there are half a dozen theories diametrically opposed to each other, advanced by men of repute, to account for the wonderful ruins in this Territory. While Prof. E. L. Hewett, of Las Vegas, who more than any other man of late years has made a specialty of research among the ruins of the cliff dwellers, believes that primitive man made the caves in Pajarito Cañon, and is hopefully looking for indications of Tertiary man beneath the floors of the ancient caves, C. F. Lummis, of Los Angeles, who also studied the cliff dwellings, stoutly maintains that they were inhabited only by the present Pueblo Indians, and are not more than five centuries old; while Rev. G. S. Madden, of Bland, who has made some valuable finds lately, believes that Montezuma set out from the communal buildings in the Rio Grande Valley to conquer Mexico, and that perhaps the ancestors of the Incas lived at one time near the present Santa Fe. Dr. Cobern, of Denver, who a year ago was certain that the cliff dwellings are only five hundred years old, now is looking for evidence among the ruins to show that the dwellers in the communal buildings were driven out thousands of years ago by seismic disturbances and eruptions of lava from the volcanoes that once belched fire and smoke, but now stand like silent sentinels along the Rio Grande over graves so old that the tombs of ancient Egypt seem modern in comparison.

While these theories appear irreconcilable, yet they all may contain some truth, some approximation at the history which extends to the time when humanity was in its infancy. The civilization that built the Gran Quivira differed from that which fashioned the cave dwellings; the people who covered the walls of the Pintada Cañon with pictographs had but slight, if any, relation to the people who reared seven-story communal buildings without cement near the present New Mexico-Arizona boundary. There were cave makers as well as cave dwellers; there were cliff builders and builders of communal palaces. One people may have driven out the other, or one civilization may have been superimposed upon the other, or perhaps mingled at the extremes at which they met. There may have been four or five successive stages of the same civilization, but that is barely probable, and future scientists may find that New Mexico underwent five conquests from the time of the primeval cave makers until the day of the American invaders. But thus far there have been only theories—theories built upon very slight premises and not upon any convincing evidence. It remains for the geologist, the ethnologist, the antiquarian, and perhaps, some day, the philologist and the historian of the future, to construct a history of the people who built and dwelt in the thousands of lonely ruins which are now scattered from western Texas to southwestern Colorado, and from the San Juan to the Gila and farther south. They may be able at some future day to decipher the pictographs and the petroglyphs which abound in that section, and for which no Rosetta stone exists.

The very heart of the cliff dwellers' region, and undoubtedly the section where the oldest cave dwellings are to be found, is on the west side of the Rio Grande, extending from a point west of Santa Fe to a line north of Espanola. It is a country naturally adapted to the making of caves. There within an area of 40 square miles the cave and cliff dwellings cluster thickly on the cliffs like swallows' nests along the eaves of a roof. Not that cliff dwellings are not found beyond that section—they are so found by the thousands to the north, to the south, and to the west, but they all bear evidence of being more recent in construction. The cliff dwellings in the Rio Grande Valley are gathered into scores of communities—some large and some small—showing that in a comparatively small area there lived as many people as to-day are found in the whole of New Mexico. That section of New Mexico is covered with tufa, a mixture of gravel and sand thrown up by the surrounding volcanoes, to the depth of 30 to 200 and in some places to a depth of 1,500 feet. Underneath this is a strata of black lava, and immediately underneath is found the Tertiary rock. This seems to indicate that the volcanoes round about were active in that era. The tufa has been washed or worn so as to leave ridges extending from the west to the east, sloping on the northern, but perpendicular on the southern side. The caves were made in the tufa while it was still soft and yielding. It is hard as flint now. The caves were not natural caves, for the marks made by the tools that fashioned them are still discernable on the walls under several coats of plastering. The original caves were made in a very rude manner, for primeval man made nothing but that which he needed for the moment. They resemble the caves found in France and in Germany and which are now known to have been the homes of men in the stone age, which preceded historic times. How long the American cave makers occupied their caves may never be known. They were probably fishermen and hunters. They left a few stone implements, but otherwise no relics, no graves, no inscriptions, nothing but their imperishable dwelling places. Their first members lived in the age of the mastodon and the big saurians. They were men of the stone age, whose ancestors were undoubtedly the men of the Tertiary period, if any such men ever existed. They may have been driven southward by the glaciers of the ice age, which extended down as far as the southern boundary of Colorado and whose melting must nave flooded the valley of the Rio Grande year after year for many centuries; but that is mere supposition. It is simply known that the cave makers existed. Whence they came and whither they went will remain a mystery that will always baffle science.

The cave makers were probably followed by the cave and cliff dwellers, who evolved a higher degree of civilization than their predecessors, a civilization whose growth can be traced upon the remains of pottery that are still found in the caves and burial mounds. First the pottery consisted merely of earthenware of rude form and made of black earth. With years it became more beautiful in form. One day a simple decoration of straight lines was added. Then came more elaborate designs. Then glazing was introduced and perfect lines of salt glazing, a lost art to-day, are found on pottery whose decorative designs show animals of queer shapes, buildings that look like smelters with tall chimneys, and pictographs. They brought their clay from a distance, the same as their ores, which they learned to smelt and to fashion into metal tools. They made musical instruments and had smoking implements. They made ornaments of tourquoise and of gold. They wove cloth, not at right angles but in circles, from a center outward. First they plastered the walls of the caves with a composition of black lava and in a later age with white cement with which they also covered the floors. Under those floors some day the chief antiquarian treasures may be found. Later still, they divided some of the caves into rooms by partitions and built outbuildings or additions upon ledges outside of the caves. After that they built houses of stone on the cliffs, first, only of 1 to 5 rooms, then, as if on a sudden inspiration, houses of 100 to 150 rooms, and at last by another bound palaces of 1,500 to 5,000 rooms, marking a transition from a people living in isolated caves to a nation having large cities and practicing all the arts of an advanced civilization. It is in those days, probably, when the rainfall became less and the rivers were drying up, that immense systems of irrigation were built, only a few traces of which remain to-day. They built roadways which are worn deep into the stone, a sign that they were traveled by thousands of people for thousands of years. They began to erect burial mounds which to-day are veritable treasure houses of antiquities. They began to carve pictographs on the cliffs. They domesticated animals and tilled the fields, planting them with corn, as charred ears of corn are found with their other remains. Skeletons found in the burial mounds indicate that they were a people of gigantic stature, 6 to 8 feet high, although some writers maintain that they were a small people; that they had large heads and intellectual brows, but that they differed in features from any race that exists to-day. Sunstones that reflected the sun on their hearths seem to show that they were sun worshipers, and they probably knew something of astronomy. The absence of any idols thus far in the ruins seems to prove that they were not idolators.

There is one striking feature of the cliff dwellers' period which must always be kept in mind. Its climate differed materially from that of to-day. The ravines and canyons were sparkling rivers. The top of the cliffs and the mesas beyond were cultivated. There exist traces of reservoirs and irrigation canals which would be of no earthly use to-day, for water has to be carried 35 miles and there are no natural reservoir sites near by at a greater elevation than the cliffs. This change of climate since the days of the cliff dwellers gives some clue to the age at which they were most numerous. Great as this age is, it is modern compared with the age of their predecessors, the cave makers.

One day, perhaps within historic times, there came a catastrophe. Whether it was a seismic disturbance such as at that time or later crumbled and tore asunder the walls of the communal buildings; whether it was a great flood like the deluge; whether it was an eruption of barbarians from the north who came across the Behring Strait, may never be known; but it seems certain that some of the cliff dwellers escaped, or else that the catastrophe was preceded by a gradual drying up of the rivers and the gradual decline in the amount of rainfall, which drove some of the cliff dwellers to the south, where the route they took is indicated by the cliff dwellings and communal buildings along the Gila and by the caves inhabited to the present day in Mexico. They may have founded the Montezuma dynasty, or even made their way through Central America to the table-lands of Peru and Bolivia, where, on the shores of Lake Titicaca, they founded a civilization far more advanced and splendid than that along the Rio Grande in New Mexico. Another migration went west. In the vicinity of the modern Gallup it reared communal buildings of stone without cement, seven stories high and 50 feet in diameter. None of the stones in any of the communal buildings, however, are larger than a man of ordinary strength could conveniently handle. They may have founded the seven cities, the legend of which enticed Fray Marcos, three hundred and fifty years ago, to the deserts of New Mexico and Arizona. To-day all trace of these people has been lost in that section except the buildings they reared, the relics they contain, and the civilization which they may have taught the Moquis and the Zuñis.

Another party of the cliff dwellers went to the north, where, in Chaco Cañon, in San Juan County, and in the Mancos Cañon and on the Mesa Verde, in southwestern Colorado, they reared the communal buildings, which, to the present day, are the admiration of the tourist, but which are now being destroyed and looted for alleged scientific, but principally for commercial, purposes. A fourth expedition of cliff dwellers may have gone southeast, and if recent discoveries made in western Texas are correctly reported they dwelt in that part of the country for a while. But the cradle of all those people stood along the Rio Grande in northern New Mexico. The cliff and cave dwellings and the communal buildings around Espanola and west of Santa Fe are by far the oldest, and from there radiated the people that at a later time built the communal buildings in other parts of New Mexico, Arizona, and Colorado. At least such is the trend of the discoveries thus far made. The cliff dwellers deserted their original homes suddenly. No remains indicate that they were slaughtered or died suddenly in great numbers. They left while they were preparing their evening meal, and if the cause of their sudden departure can ever be learned it will be a story of the greatest tragedy, outside of the Deluge, of which the world has any record.

Then came the Pueblo Indians. They imitated some of the arts of the cliff dwellers. They fled to the caves and inhabited them whenever danger threatened them. They were adobe, not stone, builders. They plastered the smoke-covered walls of the cave dwellings with adobe mud. They fashioned their pottery after that which they found around the hearthstones of the cliff dwellers. They built communal buildings and corrals of adobe. They made stone idols, which the Spanish conquerors destroyed by thousands. They could not occupy the caves, cliffs, and communal buildings left by the cliff dwellers permanently, for the land round about had become parched, the cliffs had been rent asunder, and the paths between the cliffs and communal buildings, which had been worn by thousands of bare feet in the course of thousands of years, became impassable on account of clefts in the rocks. The Pueblos were dwellers along river banks, where they applied in a primitive way the methods of irrigation they had seen high on the barren mesas and cliffs. They built cities like the Gran Quivira, with its fabled treasures; the pueblos of Acoma, Zuni, Taos, and others more or less old.

Then came the nomad Indian tribes, the Apaches, the Comanches, the Navajoes. Battles were fought, pueblos destroyed, and an incessant warfare was waged.

Soon thereafter the Spanish conquistadores appeared. They reared buildings like the old palace at Santa Fe, which now are historic, too, and worthy of preservation. What fitter place could be found for a museum of New Mexico antiquities, an adjunct to the Smithsonian Institution at Washington, than the historic palace at Santa Fe?

What a tremendous lapse of time between the cave makers and the present rulers of this country! What an immense vista of history that was enacted along the Rio Grande from the time its waters were imprisoned as a lake above the cañons and cliffs west of Santa Fe until to-day, when its channel has cut deep through the tufa, the lava, and the,Tertiary rock, and now bids fair to be lost in the sand it carried down from the mountains in the north! Egypt, Babylon, Greece, and Rome, and even the most distant days of China, seem but yesterday against the time when the cave makers made their first caves along the Rio Grande. It was in the days of the mastodon, the plesiosaurus, the ichthyosaurus, whose bones are so frequently unearthed in the country of the cliff dwellers; when the palm cast its shadows over purling streams, and the gigantic ferns nodded in quiet pools of water; when the desolate cañons and the dry ravines of to-day were living rivers, and when the fire had not yet died out of the chain of volcanoes of the Great Divide. A land of mystery indeed; a strange land, a weird land; a land that must ever attract the tourist, the scientist, the story-teller, the poet, the philosopher, the seeker after truth!

Should the man with a small soul and a smaller intellect be allowed to destroy those ruins? Should he be permitted profanely to rob the grave of a bygone civilization? Should he unhindered erase altogether the scant records that bygone races have left? In the Rio Grande Valley may be found burial mounds where vandals have with heavy pick and sharp shovel destroyed a dozen ancient pieces of pottery, several skeletons, and other precious remains to get out two pieces of pottery that, on account of their modern glitter, aroused their cupidity. In Chaco Cañon, in San Juan County, for many years already excavations have been going on systematically, brutally, on a large scale, ostensibly for museums widely scattered, but, what is worse, also for commercial purposes. Every day pot hunters go out to bring home relics by the cartload and to scatter them to the winds. Men who have dabbled a little in antiquities bring to their homes treasures to adorn their parlors, but which are lost forever to science. Indians, with no idea of scientific values, are hired to dig out pieces of pottery that from the antiquarian standpoint are of small value compared with those which are destroyed in the search. A halt must be called at once! The nation must be aroused! The Government must realize that what the Pyramids are to Egypt, the Parthenon to Greece, the Coliseum and Pompeii to Italy, that and more are the cliff dwellings and the communal buildings to the United States. Every foot of ground of that sacred region should be carefully scrutinized by the scientist; every shovelful of earth should be minutely sifted by the antiquarian. All excavations should be carried on under the supervision of the Government, and as carefully as the ruins of Pompeii and Herculaneum have of late years been uncovered.

It is not necessary for the preservation of the cliff dwellings and the other prehistoric remains grouped around them to withdraw large areas of public land from settlement or to prohibit grazing upon them. The purpose can be accomplished by the appointment of a custodian with a force of keepers or patrolmen, who will protect the ruins from vandals, will render all assistance possible to those who desire to visit the cliff dwellings or to study them, and to take part in making accurate maps and to help in any excavations that may be carried on under Government control.

The following description of the cliff dwellings in the Pu Ye cliff appeared in The Land of Sunshine in June, 1900, and is both graphic and accurate:

"The lower portion of the cliff is covered by a talus more than 100 feet in height, above which is a perpendicular face 60 to 70 feet high, at the top of which is a bench from a foot to 20 feet wide, and back of that from 10 to 30 feet more of cliff. This upper portion is very much harder in texture, and seamed and creviced, as the lower portion is not. There are stairways or steps cut in the rock, by which the bench and the top were to be reached. In the face of this cliff are more than 800 caves, in places arranged one above another, 4 in the lower face and 3 in the upper. Many of the bottom tier of caves have had the talus leveled off and a stone pavement 4 to 5 feet wide laid before the entrance.

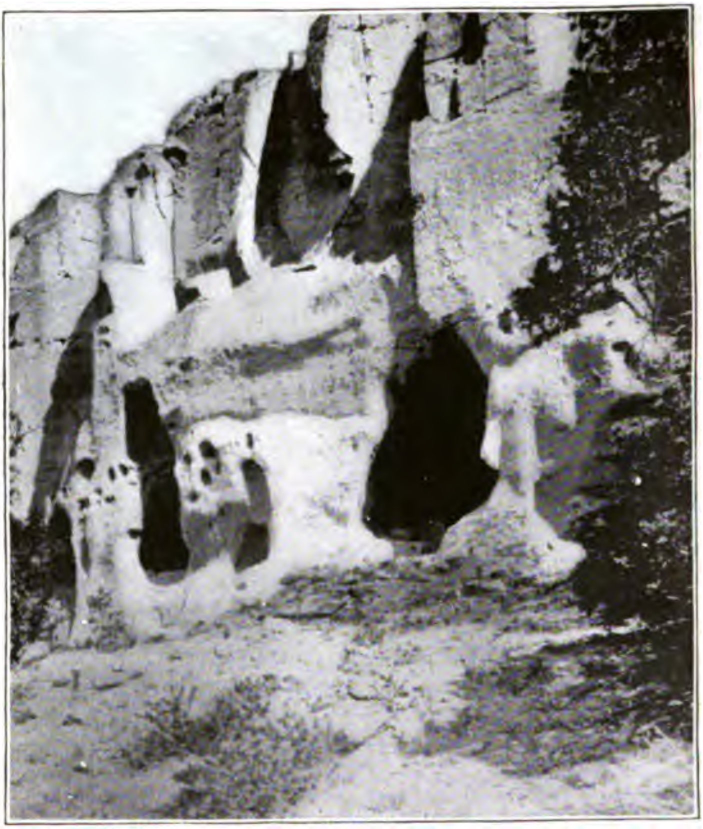
"Over such caves were rows of round holes cut into the wall, evidently used to support the logs of an outer room, whose roof made an approach to the second tier of caves. This was repeated, so in its time the town must have been of several stories, terraced, and with caves in the rear.

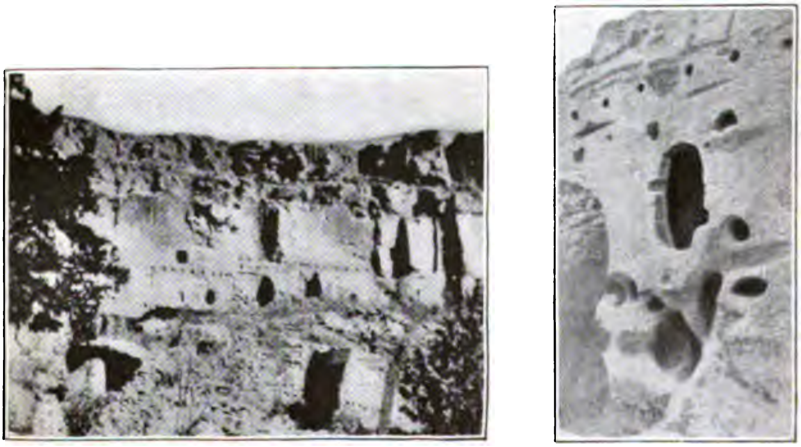
"The doorways and entrances were often small and usually low, compelling all to stoop—and sometimes creep—to enter. The caves were excavated from a foot to 4 feet from the outside, oval in shape, and generally measuring about 5 feet in width and height, with small niches in the walls, used probably for storage. Over the door a hole was cut to the outside, which admitted light and afforded an exit for smoke, and beneath this, on one side of the door, the fire was built. The ceilings, though blackened by smoke, show the chipped appearance produced by the rough tools of the cave makers, but the bottoms of the walls in some have been plastered. Chipping a piece from the plaster, we find it is simply a thin coat of adobe clay, such as is used by the Pueblo Indians in the valleys to-day. Beneath this is another coat of plaster, harder than the first, containing sand and looking like cement, and behind this are the grimed and rough walls of the cave.

"Upon the summit of the cliff we stop amazed as we look upon the ruins of a 'cut' stone building which covered 50,000 square feet. It was nearly 300 by 200 feet in size, and, if but one story in height, once contained 1,200 rooms; but in reality it was at least three stories high. The rooms are clearly outlined by the walls still standing from 3 to 5 feet high, though buried in the accumulated débris of centuries. Clearing several, we found them 5 by 12 feet in size, arranged in series or suites of nine rooms each, opening to the center, or placita, of the main building; so that you pass through eight rooms to reach the last or outer one. The walls and floor were plastered with a hard, gritty cement, and charred pieces of logs indicated it was destroyed by fire. The average size of the caves and of those rooms, with their low, narrow entrances, indicate the cave makers and the cliff dwellers were smallish people. Nor is there in all of their stonework a block of stone too large for a 14-year-old boy to handle.

"All about this building are scattered pieces of obsidian, agate, and pottery, while near by among the cedar bushes may be found corrals covering several acres, showing these people kept turkeys and other domestic animals.

"Standing upon the ruins of 'Casa Grande,' what a magnificent view is spread out before us of valley and mountain, hill and canyon, mesa and precipice! Below us are the dark-green tops of the pines under which the camp is pitched, and beyond the red-brown heads of the grama grass covered the mesa over which we had driven. Three thousand feet below us in the valley the isolated butte of Flat Top looked like a punctuation mark on the long line of the Rio Grande, visible from the Chama to the White Rock Canyon. The fields, green with corn or alfalfa or yellow with oat stubble, made a striking and beautiful contrast with the somber green of the pine forests beyond. Over these and above the timber line, from 11,000 to 13,000 feet high, towered 'the Truchas,' the 'Lake Peaks,' and round-topped 'Old Baldy,' brown and gray in their nakedness. In the north were outlined the Spanish Peaks of Colorado—a dark blue against the turquoise of the summer sky; in the south the Ortiz Mountain, and in the west the serrated tops of the Santa Claras—frame and picture which Nature alone could make; and her lavish hand has laid on the colors blue and gray, yellow and red, orange and green, in all shades, contrasted and harmonious. And as we look the cave people of the past are for the moment forgotten, and we stand silent in this magnificent and beautiful presence."





HOMES OF THE CLIFF DWELLERS.

BURIED TREASURES.

REMAINS OF A GREAT CITY NEAR THE WHITE OAKS ROUTE.

What reader of old Spanish history and versed in the traditions of "New Spain" has not heard of the "lost treasures of Gran Quivira?" Mention is frequently made of it in the old Spanish chronicles, and many persons have sacrificed their lives seeking for its hiding place.

According to the old Spanish chronicles, Gran Quivira ruins are located about 175 miles northeast of El Paso, on the western border of Lincoln County, N. Mex. The outlines of the once large town or pueblo are still plainly visible. The walls of the old adobe church are still standing and the outlines of the other buildings are plainly discernible.

History and tradition of this old town are both corroborated by the surroundings. The old Spanish history tells us that here was located the seat of government of New Spain, where all the wealth of the country was then brought and teemed in treasure vaults of church and state. According to the Spanish records, Gran Quivira was a large Indian village at the time of the first Spanish conquest, and was wrested from its Indian occupants about the year 1616. In 1661 came the great Pueblo Indian uprising, when the Spaniards were driven out of the country as chaff is driven before a wind. De Vargas, the writer of the chronicle, says: "We traveled to the southward, fighting all the way. We had 270 burro loads of treasure. We buried it between two little hills, burning brush over the spot." The Spaniards were driven out of the country as far south as the Gulf of Mexico. Where are the two little hills De Vargas speaks about? Attempts to solve this problem have cost many an adventurer his life. All around Gran Quivira can be found holes dug in the ground where some poor deluded mortal has been seeking for the "lost treasure of Gran Quivira."

The Spaniards returned to the country again after an absence of twenty years, returning here in 1681. They found Gran Quivira in ruins, having been destroyed by a volcanic eruption. The Malpais had been thrown up and the town was found a heap of ruins, as found to-day. To bear out these old traditions Spaniards' remains are to be found in the graveyard, while Indian skeletons are found in the ruins of the houses.

Coming to Gran Quivira from the west, the sight of the old ruins is ghost-like, indeed. The sun is nearly down, its last rays are shining on the gray walls of the old church, with the outlines of many of the other buildings plainly visible. It is a sight never to be forgotten. There we stood for a time, our mind centered upon what must have been the scenes that transpired here over three hundred and fifty years ago, when this was perhaps the largest and most prosperous town of what is now the great union of States. It most forcibly impressed these words upon us: "Man is a vapor, full of woes; he cuts up a caper, and down he goes." The same can be truthfully said of empires and villages.

But back to our subject. When the Spaniards returned and found Grand Quivira in ruins they pressed on northward in their fight against the Pueblos, finally conquering them at Santa Fe, where the Indians were divided up into smaller bands, as we find the Pueblos to-day. All along the foothills and far up on the mountain sides of the San Andres and Sacramentos are to be found the ruins of former inhabitants. At Gran Quivira and many other places in the Lost River basin can be seen the outlines of former irrigation canals and many other evidences of a former civilization, all of which assist in the verification of the truthfulness of the traditional history of the country.

The ruins of old Gran Quivira are located about 30 miles from Milagro station on the El Paso and Northeastern Railway. Between the ruins of the old town and the railroad are the great Malpais, or Gran Quivira lava beds, the most recent of the volcanic upheavals in the southwest. The crater of this now extinct volcano is located about 5 miles south of Gran Quivira, and is, to all appearances, bottomless. A large spring flows out from the south end of the Malpais, whose waters are 18 per cent salt. Strange to say, myriads of a peculiar species of fish are to be found in this salt water. They are the only living creatures found in it, and they seem to thrive there.—El Paso Herald.

"THE ADOBE PALACE."

The old residence of the governors-general under Spanish and Mexican rule, known as the "Palace," which for more than three hundred years has been the headquarters of the governors, captains-general, and chief executives of the Territory, province, or kingdom, is now in an admirable state of preservation, owing to the liberal appropriations made by the Government in the past. I regret to say, however, that unless the General Government continues to look after this historic old building, as it has in the past, it will soon go to ruin and decay.

It is at present occupied in the west end by the post-office; in the center as the residence and office of the Territorial secretary, and in the east end by the governor for his office and the historical society of the Territory. This last institution has stored therein many rare and curious images and other works of prehistoric races found in the Territory, as well as ancient arms, armor, and articles of household use.

In an act passed by Congress donating lands to the public schools and institutions of the Territory, approved June 21, 1898, by inadvertence a clause was inserted, being the last three lines of section 6 of the act, donating this historic old building to the Territory, as follows:

> The building known as the "Palace," in the city of Santa Fe, and all lands and appurtenances connected therewith and set apart and used therewith, are hereby granted to the Territory of New Mexico.

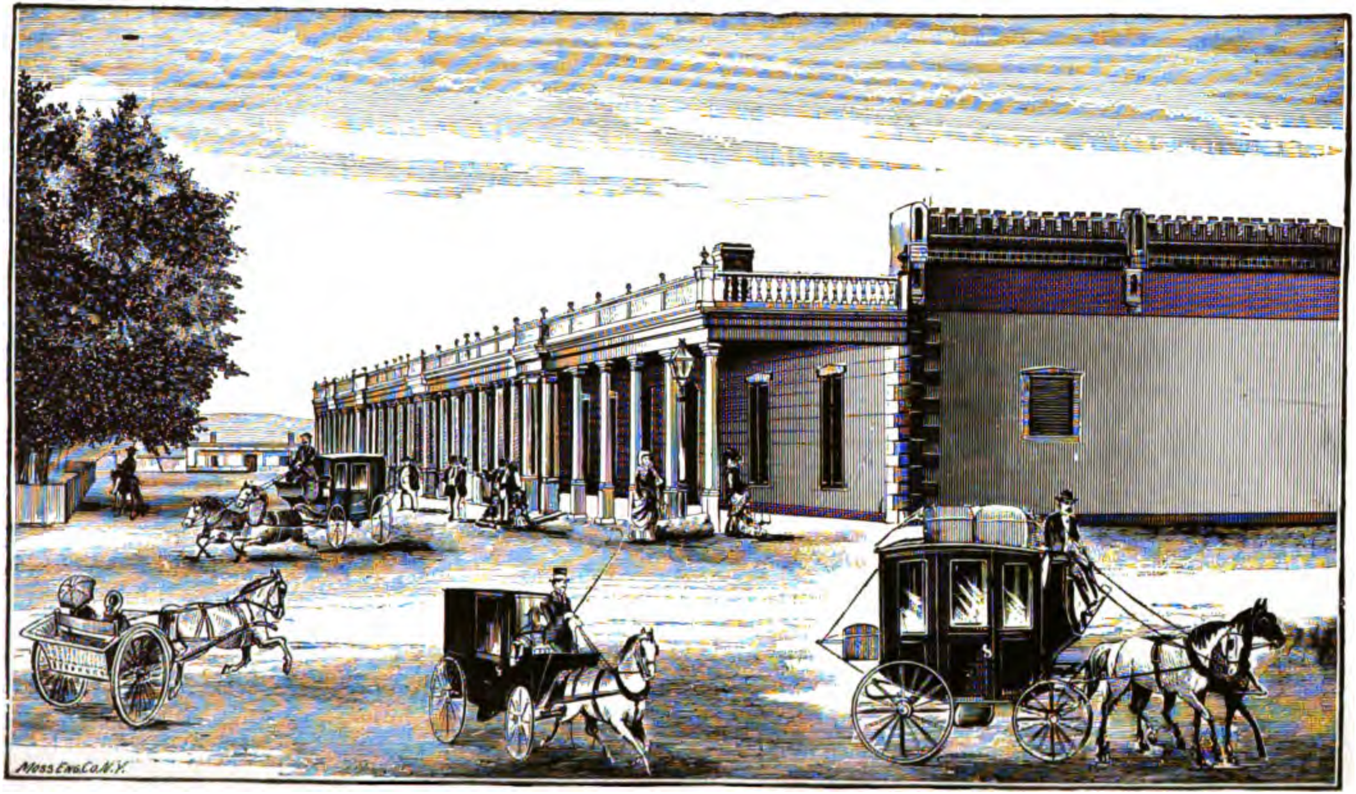
This clause does not meet with the approbation of our citizens, who believe that so long, at least, as we are a Territory, this palace should remain under the fostering care and protection of the General Government.

The Territory is not financially able to take proper care of and preserve this building as should be done, as it requires all the revenue possible to maintain its own public buildings and institutions which are necessary to the proper conduct of its government. In addition, our people feel that the United States owning and caring for this building puts it in closer touch with all of our citizens, and accordingly I most earnestly recommend that such clause of section 6 of the act above referred to be repealed.

In this connection, showing the historical association connected with this old building, I desire to quote from the report of my predecessor, Hon. L. Bradford Prince, made in 1890. The accuracy of the statements here made can not be doubted, as ex-Governor Prince has made a study of New Mexico and has written a history of the Territory which is recognized as an authority.

Ex-Governor Prince, in his report, says:

> Without disparaging the importance of any of the cherished historical localities of the East, it may be truthfully said that this ancient palace surpasses in historic interest and value any other place or object in the United States. It antedates the settlement of Jamestown by nine years and that of Plymouth by twenty-two, and has stood during the two hundred and ninety-two years since its erection not as a cold rock or monument, with no claim upon the interest of humanity except the bare fact of its continued existence, but as the living center of everything of historic importance in the Southwest. Through all that long period, whether under Spanish, Pueblo, Mexican, or American control, it has been the seat of power and authority. Whether the ruler was called viceroy, captain-general, political chief, department commander, or governor, and whether he presided over a kingdom, a province, a department, or a Territory, this has been his official residence.
>
> From here Oñate started in 1599 on his adventurous expedition to the eastern plains; here, seven years later, 800 Indians came from far-off Quivira to ask aid in their war with the Axtaos; from here, in 1618, Vincente de Salivar set forth to the Moqui country, only to be turned back by rumors of the giants to be encountered; and from here Peñalosa and his brilliant troop started on the 6th of March, 1662, on their marvelous expedition to the Missouri; in one of its strong rooms the commissary-general of the Inquisition was imprisoned a few years later by the same Peñalosa; within its


Moss Eng. Co. N.Y.

ADOBE PALACE, SEAT OF GOVERNMENT 300 YEARS AGO AT SANTA FE.

walls, fortified as for a siege, the bravest of the Spaniards were massed in the revolution of 1680; here, on the 19th of August of that year, was given the order to execute 47 Pueblo prisoners in the plaza which faces the building; here, but a day later, was the sad war council held which determined on the evacuation of the city; here was the scene of triumph of the Pueblo chieftains as they ordered the destruction of the Spanish archives and the church ornaments in one grand conflagration; here De Vargas, on September 14, 1692, after the eleven hours' combat of the preceding day, gave thanks to the Virgin Mary, to whose aid he attributed his triumphant capture of the city; here, more than a century later, on March 3, 1807, Lieutenant Pike was brought before Governor Alencaster as an invader of Spanish soil; here, in 1822, the Mexican standard, with its eagle and cactus, was raised in token that New Mexico was no longer a dependency of Spain; from here, on the 6th of August, 1837, Governor Perez started to subdue the insurrection in the north, only to return two days later and to meet his death on the 9th near Agua Fria; here, on the succeeding day, José Gonzales, a Pueblo Indian, of Taos, was installed as governor of New Mexico, soon after to be executed by order of Armijo; here, in the principal reception room, on August 12, 1846, Captain Cooke, the American envoy, was received by Governor Armijo and sent back with a message of defiance; and here, five days later, General Kearny formally took possession of the city, and slept, after his long and weary march, on the carpeted earthen floor of the palace.

From every point of view it is the most important historical building in the country, and its ultimate use should be as a home of the wonderfully varied collections of antiquities which New Mexico will furnish.

Coming down to more modern times, it may be added that here General Lew Wallace wrote Ben Hur, while governor, in 1879 and 1880.

COUNTIES.

There are now 20 counties in the Territory of New Mexico, which are as follows:

NORTHERN TIER.

Colfax; county seat, Springer. Taos; county seat, Taos. Rio Arriba; county seat, Tierra Amarilla. San Juan; county seat, Aztec. Union; county seat, Clayton.

CENTRAL GROUP.

Mora; county seat, Mora. San Miguel; county seat, Las Vegas. Santa Fe; county seat, Santa Fe. McKinley; county seat, Gallup. Bernalillo; county seat, Albuquerque. Valencia; county seat, Las Lunas. Socorro; county seat, Socorro. Sierra; county seat, Hillsboro. Guadalupe; county seat, Puerto de Luna.

SOUTHERN TIER.

Lincoln; county seat, Lincoln. Dona Ana; county seat, Las Cruces. Grant; county seat, Silver City. Eddy; county seat, Carlsbad. Otero; county seat, Alamogordo. Chaves; county seat, Roswell.

BERNALILLO COUNTY.

Bernalillo is one of the largest counties in New Mexico, both in area and population. It is of irregular shape, about 200 miles long from east to west, with an average width of 50 miles from north to south, containing a little over 10,000 square miles, being larger than any of the New England States except Maine.

The present population of the county is estimated at 35,000, one-third of which is within a radius of 5 miles from the court-house in the city of Albuquerque.

An act was passed by the last legislature providing for the creation of a new county out of a portion of the western end of Bernalillo, to be known as "McKinley County," but the law has not yet gone into effect.

The county presents a great diversity of topography and climate. There are several detached mountain ranges, having altitudes as great as 12,000 feet above sea level, large areas of high mesas or table-lands, with altitudes varying from 6,000 to 9,000 feet, and valleys ranging from 4,000 to 6,000 feet.

CHIEF INDUSTRIES.

The principal industry at present in the mountain districts is mining, though grazing is carried on to some extent, especially in the timbered sections of the mountains, and during the winter season, as there is rarely snow enough, except near the top, to cover the grass, and the trees and brush furnish the animals a good measure of protection against the severe winds, which sometimes sweep over the mesas at that season. There is also a little farming done in the canyons, though in a very small way, the principal crops being potatoes, beans, and chili, and some wheat and oats. The mountain sides, when not too steep or broken, are found to be excellent fruit lands, and the crop is more reliable there than in the valleys, because less liable to injury from late frosts in the spring. Apples, especially the winter varieties, do better in the mountains than elsewhere, and it is believed by many that fruit growing on the mountain slopes will become in time a very important industry. In nearly all the mountain districts the rainfall during the growing season is sufficient to produce crops without irrigation.

The mesas or table-lands are usually long stretches of plain, varying in width from 5 to 20 miles, and extending from the base of the mountains in the direction of the valley, with an inclination of only a few feet to the mile, and ending abruptly in a range of bluffs or sand hills, which form a background of brown for the verdure of the valley. These mesas are the principal grazing districts. In seasons of average rainfall the grass grows abundantly, and owing to its peculiar character it "cures" on the ground during the fall, and instead of "washing out" and becoming valueless, like the ordinary prairie grass, it is like hay and makes almost as good feed in the winter as in the summer. These plains are dotted at all times of the year with herds of cattle and flocks of sheep. During the summer and fall the animals have to be "held" comparatively near the springs or water holes, because cattle have to range where they can go to water during the warm weather once a day and sheep at least once in two days, but after the weather gets cool and a little snow falls on the grass the animals, especially the sheep, can go a long time without drinking, and this gives them practically a fresh field in the winter, because it enables them to range over sections that they could not reach in the summer because of the distance from water, and water in New Mexico is with the ranchman, as with the farmer, the first consideration.

IRRIGATION.

By the construction of storage reservoirs in the mountain canons to catch the storm waters which come down in great volumes during the rainy season, in July and August, and to conserve the waters of the small streams, a large proportion of this mesa land can be rendered arable and made to produce good crops. The soil is unusually strong, especially in the mineral elements, being composed almost wholly of detritus from the neighboring mountains and lacking only the addition of a very little animal or vegetable matter now and then to keep it rich indefinitely. But as a rule the construction of such works would promise so small an income in proportion to the capital required that private enterprise will never undertake it as long as money can earn as much in other lines as it is able to earn now, and unless the reclamation of these lands shall be undertaken by the Federal Government it is probable that the mesas of New Mexico will be left in the undisputed possession of the cattleman and the sheepman for many years to come. There are a few places in the county where private reservoirs have been constructed and are found to be successful in the irrigation of small tracts, but no work of this character on a large scale has yet been undertaken.

Nearly all the farming done in the county is done on the valley lands but a few feet above the level of the streams, and, owing to the semiarid character of the country, has to be all carried on by irrigation. Until recently no effort was ever made to introduce any modern irrigating system, but the work has always been done by the primitive methods in vogue among the natives of the country more than two centuries ago. This has retarded the development of the county by repelling immigration in the farming districts, and more than half of the richest agricultural lands, even in the famous valley of the Rio Grande, are yet in a state of nature. But better ideas now prevail and there is a good prospect that the Aztec method of irrigation will soon be superseded by a modern American system. As long as the river carried more water than could be used the old system, with its great wastefulness, was not so objectionable, but of late years so much of the water of the river is taken out by the great canals in Colorado that the farmers of New Mexico are practically limited to such water as rises within our own Territory, and this is insufficient to meet the present demands; hence the necessity of greater economy in the use of water. A company incorporated under the laws of the Territory is now at work on the construction of a canal which will have a length of about 40 miles, covering the most populous portion of the valley, and it is believed that its construction will render practicable the cultivation of all the land within that distance, whereas at present only about one-third of it can be cultivated. This will make places for a large number of new citizens and will do much for the development of that portion of the Rio Grande Valley in question, which is one of the most desirable sections of the Territory and one in which the farmers and gardeners are never without a good home market for all of their products.

AGRICULTURE.

It is not claimed that this section can compete with the great grain-growing States of the West in the production of such field crops as wheat and corn, and it would not be wise from a business standpoint for the owners of the land to devote it to such a purpose, because it can be made to yield so much better returns when given to other crops. The true policy here is to have small farms closely cultivated, and yielding as land can only be made to yield under irrigation. In the wheat and corn growing States a man is supposed to need 160 acres to make a profitable farm, but a much smaller area is required here. A well-known writer, who has had nearly twenty years' experience as the owner of a farm in the Rio Grande Valley in Bernalillo County, contributed an article to a recent publication by the bureau of immigration of this Territory, in which he took the ground that 10 acres of the valley land of this county, cultivated under irrigation, could be made to bring the owner a larger net cash return every year than could be realized from a quarter section in any of the grain-growing States, and he sustained his position by facts and figures drawn from actual experience. Detailing the manner in which the result mentioned can be achieved, the writer says:

> Sweet potatoes of most excellent quality yield abundantly in the soil of this valley, and do not require to be irrigated as often as most other crops, thus saving the farmer much labor. Both soil and climate seem to be peculiarly adapted to their growth, and the quality of the product is fully equal to the famous sweet potatoes of New Jersey, while a fair average crop will give from 900 to 1,000 bushels to the acre. They never sell in the fall for less than $1 a bushel, and those that are kept into the winter usually bring as much as $2. From this it will be seen that 1 acre cultivated in sweet potatoes in Bernalillo County will bring the farmer as much money as he could hope to realize from 80 acres in corn or wheat, in any of the grain-growing States, in a good year, and since the result is to be measured by dollars and not by acres, it will be seen that the irrigation farmer, although he may not be able to cultivate fields as broad as those of his neighbor in the "rain belt," has a better chance of success, and a decidedly better prospect of a balance to his credit in the bank at the end of the year,
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> The onion is another product that seems to be peculiarly adapted to this section of the country. The large white Spanish onions, which grow to greater perfection in New Mexico than anywhere else in the United States, afford one of the most profitable crops that can be grown in this county, and is also one that can be brought to perfection only under irrigation. On account of its beautiful silvery color and its peculiar mild flavor this onion finds ready sale in any part of the country, and always commands the highest price. The yield is about 500 bushels to the acre, and the price at home ranges from $1 a bushel in the fall to $3 a bushel in the winter and spring.
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> Celery and asparagus are also articles which are especially adapted to the soil and climate of this county, and attain here a degree of excellence but rarely found in such articles grown elsewhere. The celery is far superior to that grown in California, and is pronounced by all who try it fully as good in all respects as the Kalamazoo product, which is noted throughout the country for its superior quality. All the eating houses and dining cars on the western divisions of the Santa Fe Railway system now draw their supplies of celery from the gardens of Bernalillo County, whereas a few years ago they obtained such supplies from Michigan and California. And when it comes to asparagus this section can fairly claim to "beat the world," for nowhere else on the American continent is there produced asparagus which can at all compare with that grown in the valley of the Rio Grande. In many places in the valley there are large quantities of a salt which goes under the common name of "alkali," and which, though deleterious to some kinds of vegetables, is one of the favorite foods of asparagus, and does away with the necessity of applying salt to the ground, as is the custom wherever asparagus is grown in the Eastern or Middle States. It also causes the plant to attain in this section a degree of excellence in tenderness and flavor which is unknown in that grown elsewhere. During April and May, the months when the cutting is done. the shoots will attain, under favorable conditions a growth of about 6 inches a day, every particle of which is edible; there is no woody portion to be thrown away; the whole stock is soft and tender, and the flavor is proportionately superior. Sample lots of asparagus from this section have been sent to many parts of the country, and the verdict is always the same—"the best I ever tasted." Experience has shown that it will bear shipment to Portland, Me., and that is as far away from New Mexico as one can get in the United States, so it will be seen the whole country is open to us as a market, and that the article can be sold wherever introduced goes without saying, for it sells itself. An asparagus bed of 1 acre will yield, after the third year, about 200 pounds a day for sixty days in the year (which is as long as it is wise to cut it), and this will bring an average price of 10 cents a pound.
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> Thus, with 1 acre each of sweet potatoes, celery, onions, and asparagus, a man can make a good estimate of the money value of the crop that he will have for market each year. And in addition to this he will need 2 acres in alfalfa, and 2 in corn or oats for his cow and horse, and 2 for house lot, orchard, and kitchen

garden. That makes 10 acres in all, and is as much land as any man needs in this section to farm for profit, while it is as much as the most industrious man can properly cultivate in the crops named. There is an abundance of good land for such purposes to be had in this county at fair prices, and with good facilities for irrigating, such as are now being provided, there will be room here in this line of business for at least a thousand families, convenient to as good a market as there is anywhere in the West.

GALLUP.

The great industry of New Mexico for centuries to come will be mining. The many mountain chains and detached ranges which are found in every part of the Territory are all seamed with mineral-bearing veins. In the mountains of this county there are workable veins of gold, silver, copper, lead, and coal. The principal coal-mining industry of the Territory is carried on at Gallup, in the western part of the county, about 15 miles from the Arizona line. Gallup is a town of about 2,500 people, and is the second town of the county in size and importance. It has good public schools and churches, and an enterprising weekly newspaper, and while strictly a coal-mining town is as orderly a place as will be found in any part of the country, East or West. There has been but little done in the immediate vicinity in the way of agricultural development, by reason of the scarcity of water for irrigation, but the soil is very rich, and wherever it can be cultivated yields abundant crops. The town is situated in the valley of the Rio Puerco of the West, on the Pacific slope, just west of the Continental Divide, and at an altitude of about 6,500 feet above sea level, which gives it a delightful climate, especially in summer. The Zuñi Mountains, a few miles south of the town, contain the most extensive forests of pine timber now to be found in any part of the United States south of Minnesota. The most of this timber is on public land or on land owned by the railroad company, but owing to the distance from any railroad but little of it has yet been utilized.

Gallup is on the Santa Fe Pacific Railway, a division of the main line of the Atchison, Topeka and Santa Fe, and is the principal town on that line between Albuquerque and Los Angeles. It furnishes regular employment in its coal mines to about 600 men, and its annual output exceeds 200,000 tons, or nearly one-third the total coal output of the entire Territory. The bulk of this is delivered to the railway company, and furnishes all the fuel used by the company between the Rio Grande and the Pacific Ocean. The operators here also send large quantities of "commercial" coal to Los Angeles and other southern California points, to Phenix, Tucson, and other places in Arizona, while many thousands of tons come east to Albuquerque, and are sent south into Texas and old Mexico. The coal is a lignite, excellent for steam and domestic purposes, burning without any clinker, and leaving but little ash, though it will not coke, and is not a desirable coal for gas making. There are five known workable veins, one above another, the lowest at a depth of less than 100 feet. The field extends to an unknown distance to the north and west of the town, and is considered practically inexhaustible. The first work in the development of this field was done in 1881, but the industry did not assume important proportions till 1884, so that it can be said to be now about fifteen years old.

This is the only important industry yet developed in the western part of the county. The country is well adapted to grazing purposes, but the most of it is embraced in the reservation of the Navajo Indians, and the flocks of this tribe graze over all the reservation and also the adjoining lands for several miles on either side. The treaty with the Navajos requires them to keep their people and their animals within the limits of their reservation, but this provision has never been enforced.

BLAND.

The town of Bland, in the northeastern part of the county, about 50 miles by the road from Albuquerque, is also a mining town, but the work at this point is confined to mining the precious metals. The town is the center of the famous Cochiti mining country, now well known as one of the most extensive and productive of New Mexico's many mining camps. It is situated in Pino Canon, about 10 miles from the Rio Grande, and is surrounded on all sides by a rich mineral country. It was founded about seven years ago, and has a population estimated at 1,000. The nearest railway point is at Thornton, on the main line of the Atchison, Topeka, and Santa Fe, about 18 miles distant, but a stage line furnishes comfortable transportation for passengers and a daily mail. The same coaches continue up the canyon from Bland, and across the mountain to Sulphur Springs, a well-known health resort, where the waters have been found to possess highly valuable medicinal qualities. The ores of the Cochiti camp are chiefly valuable for their gold. They are usually of low grade, but are of a character that can be worked in the camp. This, taken in connection with the fact that they are found in immense bodies, and are also very evenly mineralized, makes mining at Cochiti profitable and reliable.

In a description of this camp, a writer who recently visited the place says the Washington, Lone Star, and Crown Point mines are in the immediate vicinity of the town of Bland. It is estimated that there are 50,000 tons of ore on the "dump" of the Washington mine at the present time, worth $28 a ton. The property is in litigation at present and is not being worked. The Lone Star has a vein of rich sulphides, varying from 30 to 75 feet in width, and running perpendicularly up the mountain side. This vein has been worked steadily for the last two years, and there is now enough ore "in sight" to keep a mill with a capacity of 100 tons a day running for four years. Lying parallel with this vein, and only a short distance from it, is another which has not yet been touched. It is the intention of the company owning this property to put up during the coming year a mill for the treatment of their ores with a capacity of 350 tons a day. The site has been selected, and arrangements have been made for the construction of the mill. The mill at present in use is small, having a capacity of only 25 tons a day.

The Albemarle property, upon which more work is being done now than upon any other in the district, is only about 3 miles from Bland, but it is in another canyon, and hence the mountain has to be crossed in order to reach it. The road has a grade of 1,500 feet to the mile, but it is the best route than can be found, and over it, up one side of the mountain and down the other, have to be hauled not only all the products of the mine, but all the supplies for the camp. The mine is in a canyon not over 60 feet wide at the bottom, and room was made for the mill by blasting out space in the wall of the chasm, so that the buildings themselves appear to be a part of the mountain. The 250-horsepower engine and all the immense machinery for the mill were transported over the road above mentioned. The present mill has a capacity of 300 tons a day, and another of equal capacity is now in course of construction. The works now give employment to about 450 men, and that number will be nearly doubled when the new mill is completed.

This is the largest mining enterprise in the county, and there is none larger in the Territory, but a good idea can be formed of the extent and richness of the Cochiti mineral field from the fact that there is room for at least a dozen more, of equal capacity, and ore enough to keep them all running full handed for at least a quarter of a century, and probably much longer. A railroad from some point on the Atchison, Topeka and Santa Fe to Bland is much needed, and if such a line were built, so that ores could be shipped out at moderate expense, reduction works sufficient to handle the output of the camp would probably be built along the Rio Grande, where the river would furnish a sufficient water supply, the lack of which is now one of the greatest obstacles in the way of the prosperity of the camp, and where the advantage of water power could also be had. This would greatly facilitate the development of the camp, since the small operators, who are unable to put up mills of their own, would thus be given a market for their ores.

OTHER CAMPS.

There are several other mining camps in the county, though the most of them have so far been unable to send much ore to market, owing to the undeveloped state of their mines. Prominent among these may be mentioned Hell Canyon, Coyote Canyon, Las Placitas, San Isidro, and Copper City. The last two named are copper camps and the others gold and silver. They all have rich leads and lack only development to make them good and profitable metal producers, but it requires a considerable amount of capital to transform a "prospect" into a producing mine, and capital in sufficient amounts to be of value for such purposes is very rarely, if ever, found among prospectors. In some of the camps named, especially Hell Canyon, considerable development has been done, and the work in every case has justified the estimates which the owners put upon the property. In the course of time, when men with money enough to make mines of these claims take hold of them, all the camps referred to will become prosperous mining districts. There is a large copper field at Copper City, and it has been worked some in years past, but it is so far from the railway and the product and supplies have to be hauled so far over a difficult road that operations in the camp can not be carried on with profit, even at the high price of copper now prevailing. At San Isidro some work is now being done, and the prospects are very encouraging. This is much more accessible than the Copper City camp, and it is believed that the ore can be hauled out and shipped at a profit, as it is not more than 25 miles from the line of the railway.

SUMMER RESORTS.

Some of the most delightful and enjoyable summer resorts in the Southwest are in the mountains of this county, and readily accessible from the towns. The Jemez Hot Springs, now well known and popular as a health and pleasure resort, is in the canyon of the Jemez River, twelve hours' ride from Albuquerque by stage, and the Sulphur Springs, to which reference has been made elsewhere, are situated about 10 miles farther up in the same canyon. Both these places are well-known resorts, and their reputation extends beyond the limits of the Territory. They are visited annually by many persons in search of health, and the waters are said to have a very salutary effect in nearly all cases. They are especially valuable to those afflicted with scrofulous disorders or rheumatism, and it frequently happens that rheumatic patients who have to be carried there on their beds appear to be restored to perfect health after a sojourn of a few weeks. These places are also popular pleasure resorts in summer, because the weather is rarely too warm for comfort, and there is excellent hunting and trout fishing.

Camp Whitcomb, in the Sandia Mountains, 17 miles east of Albuquerque, is also a very popular summer resort for people from the city. It is reached by a good road, through a very interesting portion of the country, and the trip can be made from town to the "Camp" with a carriage in about three hours. The place is situated high up on the mountain side in the pine woods, and its convenience to the city, as well as the beautiful scenery, the cool and bracing atmosphere, and the abundance of pure mountain water from numerous large springs, combine to make it a very attractive warm-weather resort, and it is visited by the people from the city in large numbers throughout the season. There are a score of other good natural resorts in the county, but as they are without accommodations for the public, they are visited only by those who can go prepared to "camp out," and most of the older residents of the country prefer this style of entertainment to the hotel or public house; hence, a large number of families in the city spend their summer vacation in camp in some favorite mountain canyon where they can have all the attractions of nature in her wildest moods, and yet be not so far removed from civilization but that the city can be reached in a few hours if necessary.

ALBUQUERQUE.

The county seat of Bernalillo County is Albuquerque, the largest city in the Territory and the commercial center of all that portion of New Mexico south and west of the Glorieta Mountains, embracing about three-fourths of the Territory, and also of the northern half of Arizona. Its merchants cover an undisputed trade area of about 100,000 square miles, or a district larger than the six New England States and the State of New York combined, which give the place a wholesale trade much larger than is done by many Eastern cities of three times its population. The present population of the place is about 12,000, about one-fourth of whom are natives of the Territory, and the remainder immigrants from the "States," coming from nearly all the States of the Union. There is not a more cosmopolitan city in the United States than Albuquerque, and the peculiarly American quality of "get there" is very distinctly in evidence on every hand. The importance of the position which this place occupies with reference to the business affairs of New Mexico and Arizona can be best illustrated by the fact that the United States Post-Office Department has made it the postal headquarters for the Southwest, and the post-office here is the depository for all the offices in both the Territories. The free-delivery system was inaugurated about ten years ago, and mail is delivered twice a day in all parts of the city and once a day in the suburbs. It is also the most important point on the line of the Atchison, Topeka and Santa Fe Railway between Topeka and Los Angeles.

Many Eastern people imagine that in coming "away out to New Mexico" they would put themselves entirely beyond the pale of civilization, and for the benefit of such it may be said that they would find Albuquerque fully abreast with any Eastern city of double its size in everything that goes to make up the modern, progressive, American town—not even excepting those things that might better be left out, but which, like the buzzards, always gather where the carcass is. The town has a fine system of public schools with a large and elegant school building in each ward. There are in addition a number of good private schools, while denominational institutions are maintained by the Methodists, Presbyterians, and Catholics. It is also the seat of the University of New Mexico, established and maintained by the Territory, and endowed by the United States with a liberal donation of public land. The university building is located upon an eminence about 200 feet above the general level of the town, with an unobstructed view for many miles in every direction. With the Sandia Mountains 12 miles east for a background, the view takes in the Jemez Mountains, 60 miles north, the San Mateos, 70 miles west, and the Socorros and Magdalenas, 75 miles south, while with a glass may be seen the Mogollons, more than 125 miles to the southwest. The institution has a first-class faculty and ranks among the best Western colleges. A new building has recently been erected, in which will be established a department that will be unique in its way, being the only one of its kind in the United States, and to be devoted to the study of climatology, with special reference to the effects of climatic conditions in the cure or prevention of disease, particularly diseases of the lungs. Mrs. Alice P. Hadley made the university a donation of $10,000 for this purpose on condition that a like sum would be contributed by the people of the Territory, whereupon the legislature appropriated $5,000 and the people of Albuquerque raised the remainder. The department will be known as "Hadley Hall," in memory of the late Walter C. Hadley.

In the matter of religious advantages the town is very thoroughly equipped. All the leading Christian denominations have societies here, with good, commodious houses of worship in which services are held regularly, and a Jewish society, organized some years ago, is now building a synagogue.

There are commodious places of public entertainment and amusement in which are given lectures, operas, theatrical entertainments, etc., and during the entertainment season the people of the place are never at a loss for "some place to go."

One of the institutions of Albuquerque worthy of special notice is the "Commercial Club." This represents a successful combination of business and social interests, and possesses within the one organization all the principal features of a chamber of commerce and a social club. To the active and effective work of this organization as a general "push committee" is attributed much of the prosperity which has been enjoyed by the town during the last ten years. It is quartered in its own building, erected especially for the purpose at a cost of $75,000, a large and elegant structure of red sandstone, and which is pronounced by visitors as fine a clubhouse as any west of Chicago.

The principal shops of the Atchison, Topeka and Santa Fe Railway west of Topeka are located here and furnish regular employment to some 600 men. These shops are being steadily enlarged, and it is said to be the intention of the company to have all of its work done here for all of that portion of its system west of the western line of Kansas, which will render necessary the employment at this place of about 1,200 men.

There is an excellent system of waterworks, furnishing the purest of water in great abundance, both for domestic use and for lawn irrigation, and at very low rates. Light is furnished by gas works and an electric-light plant, the streets being lighted by electricity.

All the streets are graded, and most of them are paved with a natural cement obtained from the neighboring hills, and laid upon a foundation of cobblestones, making a thoroughfare very firm, smooth, and durable. Excellent sidewalks line all the principal streets of the place, the popular material for this purpose being an artificial stone made of sand and Portland cement upon a foundation of gravel. This makes a walk as hard and smooth as natural stone, and apparently quite as durable.

The manufacturing interests of the town, in addition to the railway works above named, are represented by a foundry and machine shop, which turns out large quantities of work, especially for the many mining camps in various parts of the Territory; a brewery and two ice factories, which ship their products to all parts of Mexico and west to the California line; two flouring mills, two mineral-water establishments, a planing mill, four brickyards, a cigar factory, a broom factory, and many smaller establishments.

There is an excellent opening here for a canning factory, to handle the fruits and vegetables which are grown in great abundance in this vicinity, and a beet-sugar factory.

Nearly all lines of business, commercial, mechanical, and professional, are represented in Albuquerque, and it has, in addition, a considerable population composed of persons not engaged in any active business, who seek the mild, dry atmosphere of this section, especially during the winter season, for health or pleasure.

There are two daily papers in the town, one issued in the morning and the other in the evening; five weekly papers, and one monthly publication, the last named being devoted to the interests of the mining industry. The town also possesses the largest and best free public library in the southwest, which is maintained by a special tax levied by the city council for that purpose.

CHAVES COUNTY.

In point of natural resources from which are rapidly being developed conditions that are soon to support a prosperous, wealthy people, Chaves is the banner county of New Mexico.

As originally organized in 1899 from a portion of the county of Lincoln, it was approximately 100 miles from north to south and 110 miles from east to west. The legislature of 1899 added territory on the southwest about 36 miles square. The greater part of this large area is grazing land, pure and simple, excellent grass lands which sustain thousands of cattle and sheep the year round and which, with the further development of water, which is quite practicable, will sustain even more. A great deal of the range area is held by cattle owners who have title, in many instances, to land on which are found springs and lakes, or on which they have dug or bored wells and put up windmills and, owning these improvements, are able to control, in a manner, the range contiguous. But there are large areas of grass lands on which no water is found during a very dry season, and it is in such localities that the development of water is most important, since without water the range, although covered with the best of feed, is practically well-nigh valueless. To this matter, the finding of a water supply, a great deal of attention is being devoted, at a heavy expense in some cases. Large well-boring machines, worked by gasoline engines, are being used, and the work is being carried on, slowly but surely, by men of means who understand the importance of procuring an adequate supply of water. The open-range stock interests were the original mainstay of the county and continue to be the most important in point of tax-paying ability. But the glory of Chaves County, at least at present, is the magnificent alfalfa farms with their herds of fine cattle—Herefords and Shorthorns—and their flocks of Shropshire sheep. Two large farms, one of 1,000 acres and another comprising 13,000 acres in both alfalfa and natural-grass pastures, are devoted exclusively to the Hereford industry, and have on them as fine animals as could be purchased from some of the leading breeders of registered Herefords in the United States. In fact the owners of these farms have among their fine stock many prominent prize winners. The owner of Sir Bredwell, who paid $5,000 for him, has lately purchased a 500-acre alfalfa farm 2 miles east of Roswell at a cost of $25,000, and will spend thousands of dollars making it a model Hereford home. The two farms referred to above are a surprise and delight to all who see them and the fine stock on them. Chaves County will soon be known as one of the most prominent, successful Hereford breeding grounds in the United States. The pioneers in the industry here are men of ample means who have "set their mark high" and whose dictionary does not contain the word "fail." Their friendly emulation and that of others to follow will result in a few years in placing Chaves County in the front rank of fine whiteface breeding centers. The breeders of Herefords at present are devoting their attention largely to the raising of young bulls. The home demand—the range-cattle owners—has so far taken all that could be raised. Inquiries are being made by large cattle owners from Old Mexico for young bulls with which to improve their herds, and they will be good customers.

Meanwhile the old "standby," the Shorthorn, is not being neglected. There are three herds of 400 to 500 each, two of which are being bred straight, while the other, some 500 Durham cows, are being crossed with Hereford bulls. These herds are also owned by men who are able to breed the best and will do so. The result will be watched with interest.

For the breeding of both Herefords and Shorthorns in the arid region the alfalfa farm is a necessity, and as that wonderful forage crop can not be raised successfully without irrigation Chaves County, with its abundant supply of water, possesses advantages superior to any other portion of the Southwest.

WATER SUPPLY.

The irrigation systems of Chaves County at present obtain their supply of water from three sources:

First. The immense springs in the vicinity of Roswell, fed by subterranean streams of artesian origin. From these five beautiful, limpid streams of water flow, known as the North Berrendo, Middle

Berrendo, South Berrendo, North Spring River, and South Spring River. These streams are the fishing grounds where disciples of Isaak Walton find rare sport catching black bass, which are abundant.

Second. The large number of artesian wells, for which this locality is becoming famous. The first artesian well in this county was drilled in the summer of 1891 and flowed about 10 gallons per minute. The last one, developed in the town of Roswell, was drilled in five days to a depth of 285 feet at a cost of $550 and flows over 2,000 gallons per minute. Of these wells there are now over 100 in the county, and the aggregate flow of water from them is already an important addition to the supply for irrigation, in addition to its use for domestic purposes. A large number of wells are utilized for piping water into dwellings and business houses, the strong pressure making it practicable. A recent successful experiment by a citizen of Roswell has demonstrated the fact that this pressure is ample to operate a small hydraulic ram, costing $20, by which water can be forced into a large tank 30, 40, 50, or more feet above the ground and furnish an abundant supply of water for the second, third, and fourth stories of buildings. The artesian-well development and its uses, including the furnishing of power for machinery, is in its infancy here, notwithstanding the satisfactory results that have already been obtained, and it is confidently believed that further developments, when test wells shall have been drilled to much greater depths, will make present results seem small. The deepest well so far is 950 feet and flows water much softer than any other well known in this region.

Third. The flood waters from the great watershed of the White Mountain region, which extends for nearly 100 miles west of Roswell. The most of this supply goes to waste for want of storage reservoirs, which some day in the near future will be built, and these flood waters will then be used to make productive from 1,000,000 to 1,500,000 acres of rich, fertile land which now produces only grama grass for pasturage. Plans for the building of these reservoirs have been under consideration for some years and need only brains, energy, and capital to carry them into effect and practical operation.

SHEEP AND WOOL.

This important industry has grown remarkably in the past two years owing to the favorable conditions existing, making it highly profitable to flock masters. The number of sheep in the county is estimated by well-informed persons at fully 250,000 head. The reasonable tax rate, ample range, and other favorable conditions have caused owners from other portions of the Territory to move their flocks to Chaves County, and the business has become one of the most important.

ROSWELL.

Roswell, the county seat of Chaves County, has a population of 2,500, which is steadily increasing; excellent graded schools, superior to those of many a larger, older town in the States; the New Mexico Military Institute, fully mentioned herein, an ice factory, telephone system, one bank, prosperous churches, a flourishing commercial club of 65 members, and nearly all lines of business, represented by live, energetic men. As these lines are written, the board of town trustees have just received the report of an expert on the estimated cost of a sewerage system for the town, amounting to $27,000, a 20-acre farm for the proper disposition of the sewage having been donated for that purpose by a progressive, nonresident property owner of large means. An election for the purpose of voting bonds will be called, and will without doubt carry. An electric-light plant is under careful consideration and will be installed in the near future. Ten miles of streets are graded, many of them being shaded by handsome trees, and various public improvements are being projected for early consummation. The inhabitants of the town include people from every State and Territory in the Union, and are intelligent, wide-awake, and progressive. Plans for the establishment of a female college are maturing and promise to meet with substantial encouragement, amply sufficient to insure its success.

From January 1 to September 1, 1899 (eight months), the buildings completed and in course of construction in the town amount to $115,000.

FRUITS.

The fruits raised in the Pecos Valley are the admiration and delight of all who see and taste them, particularly the apples and pears. When orchardists learn to plant peaches only on high ground, better results will be obtained, as it is noticed that those so situated bear without fail. Grapes and cherries have been neglected, but both are raised to some extent and of the finest flavor, particularly the former. Chaves County fruit takes first premium wherever exhibited. Apples, pears, and plums are especially fine. Experts agree that the apples raised here have no superior anywhere in the United States for size, color, symmetry, and flavor. Their natural high polish and their perfect condition make them ready sellers in every market. The absence of all pests common to apple orchards makes the lot of the orchardist here a happy one, compared with other localities where the principal part of his labor is the carrying on of an unequal fight with insects that defy all efforts to cope with them successfully. These facts make apple raising in Chaves County take rank next to the live-stock business in importance. One orchard of 500 acres is now coming into bearing and another of 250 acres is being set out. There are a number of older orchards which have been bearing for years, furnishing the product which has given the county its well-deserved reputation as a fine fruit region.

CLIMATE.

To those who have taken the pains to make intelligent inquiry, the remarkable climate of the Pecos Valley and its beneficial effect upon persons troubled with diseases of the throat or lungs, in particular, is almost too well known to call for any extended mention. The dry, pure air, the bright sunshine during the greater part of the year, the excellent chances for hunting and fishing and other diversions, make Roswell a desirable place for those who need such a climate. The great need has been a sanitarium, properly arranged, with modern conveniences, and conducted according to the best rules of practice laid down by acknowledged expert authorities who have acquired practical experience in the successful management of such institutions. This want is now to be supplied. One of the finest blocks in the town, 350 by 421 feet, beautifully situated, has just been purchased by a physician who has unlimited means at his command. He will erect a fine building with a group of cottages in connection, improve the grounds, and make the property one of the finest and most attractive in the Southwest.

RAILROADS.

The extension of the Pecos Valley and Northeastern Railway from Roswell to Amarillo, Tex., 220 miles northeast, was completed February 15, 1899, giving direct connection with Kansas City, Chicago, St. Louis, and Denver, and to this is due very largely the increase of population and investment of capital in the town and county. The machine shops, roundhouse, and the general offices are located at Roswell, and thousands of dollars are being spent by the company in improvements here, a $10,000 building for the general offices being in course of construction at this time. When the improvements shall have been completed and a full force at work in all departments, which will be soon, the pay roll will aggregate $5,000 or more each month. Roswell is the central point on the line which, together with the superior quality of the water here and the abundant supply, and the fact that the principal stockholders in the company own valuable lands close to the town, are significant reasons for centralizing the railroad company's operating forces at this point.

From February 15 to July 1, 1899, the wool shipments from Roswell reached very close to 1,000,000 pounds, while 300 cars of cattle were shipped from this point in the same time. The shipments this fall will also be very large, adding heavily to the above figures. The Pecos Valley and Northeastern will in all probability be extended soon from Pecos to Boquillas, Tex., where it will connect with the road being built from central Mexico, thus adding very greatly to the traffic of the road and to its importance. Of more importance to Roswell is the proposed line west to the coal fields and gold and silver mines of Lincoln County, to a junction with the El Paso and Northeastern Railway, and on west to some point on the Atchison, Topeka and Santa Fe line, affording a market for the alfalfa, fruits, and vegetables raised here, and making it possible to secure a supply of coal and wood at lower figures than at present.

STOCK INDUSTRY.

The stock industry is the principal industry of the county of Chaves, and has grown rapidly during the past year. The assessed valuation of the cattle in the county of Chaves for the year 1900 is $1,000,000, while the actual valuation is $4,000,000.

One hundred thousand sheep have been permanently located within the boundaries of Chaves County during the last two months in addition to 150,000 already returned for taxation. We probably have considerably over 250,000 sheep now, and will sell right here in Roswell 1,500,000 pounds of wool next spring. The high price of beef cattle and sheep has added wonderfully to the income of Chaves County, and is on the increase all the time.

THE ADDITION OF THE LOWER PENASCO COUNTRY.

This addition gives Chaves thirty-six townships, rich in grazing and agricultural lands, and containing a particularly solvent community of about 500 souls, among whom last year there was not $500 in delinquent taxes. This section is naturally tributary to Roswell, and will be of great benefit to Chaves County as a paying business adjunct.

PORTALES.

The new town and post-office of Portales is located on the Pecos Valley and Northeastern Railroad. It is located in a splendid grazing country where water is easily obtained and in large quantities; is surrounded by large cattle ranches, and promises to become a large cattle shipping point. It now has a progressive population of about 250, two good-sized general stores, a lumber yard, etc., a $3,000 schoolhouse is in process of erection, and a thriving community is promised. During the year a post-office has been established at South Spring, 5 miles south of Roswell, and at Glen, 40 miles north, besides the one at Portales, already mentioned. Chaves County also absorbed two offices in addition to the country belonging to the Lower Penasco and Elk.

POPULATION OF CHAVES COUNTY.

The county now contains about 5,000 people and is daily receiving additions. By the time the next census is taken in June it will doubtless have many more inhabitants. This is a rapid increase and is an increase which is decidedly permanent. The new people are almost all people of means and intelligence, and are of great advantage to us socially and financially.

The New Mexico Military Institute, which is fully described as to purpose, etc., in another part of this report, will bring many people to Roswell, the county seat of Chaves County, as it has already done, for the purpose of educating their children and having them receive advantages equal to those to be obtained in the East.

COLFAX COUNTY.

Colfax County, situate in the northeastern part of New Mexico immediately south of the Colorado line, is 72 miles long from east to west and 54 miles wide. It contains 2,488,320 acres, more than one-half of which is included within the boundaries of the Maxwell land grant, title to which was confirmed in 1886. During the fiscal year ending June 30, 1899, large tracts of land amounting to 200,000 acres have been sold by the grant company to individual ranchmen, farmers, and minor corporations. The land within the grant is mostly mountainous, containing large tracts of valuable timber, coal, gold, iron, and copper. The remaining land in the county is mostly undulating prairie, resembling very much the one-time prairie land of the Mississippi Valley, with a gradual slope northwest to southeast. During the past year more than one hundred families have settled on this public domain, and with their predecessors are becoming thrifty farmers and ranchmen. A large portion of the land still remains the property of the Government. The soil is rich, and a great portion of it can be irrigated from the waters of the Red, Vermejo, Cimmaron, and Rayado rivers, and many smaller streams. The altitude varies from 5,600 feet in the southeastern portion to 7,000 feet at the foothills, arising to 13,000 feet on the western boundary, which is the highest point of the Sangre de Cristo Range. The northern portion is bounded by the Raton Range of mountains, being a spur or offshoot from one of the main ranges of the Rockies. The mountains on the north and west offer a natural protection from the snowstorms and blizzards, as well as from high winds. The average mean temperature is 50° F. near the foothills, the coldest being 32° and the warmest 72°. The atmosphere is dry and no great extremes of heat or cold exist. The average rainfall is 14 to 19 inches at this altitude, but the rainfall in the mountains runs as high as 30 inches. During the winter the canyons in the mountains are filled with snow, which gradually melts during the spring and summer, furnishing a sufficient supply of water for need of irrigation.

The population of Colfax County is about 14,000, and though coming from various States of the Union, different parts of Europe and Mexico, together with the native population who remained there at the time New Mexico became part of the United States, and engaged in various pursuits of life, are yet as homogeneous a class of people as are found anywhere between the Atlantic and Pacific oceans, and are industrious, thrifty, and progressive.

In the northeastern portion of the county are the Johnson and Barela mesas, which have sufficient rainfall for all farming purposes without irrigation. On these two mesas alone nearly 40,000 acres of land are now under cultivation.

The mountain streams abound in trout, and there are still many deer, bears, turkeys, grouse, and other game to be found in the mountains.

RAILROADS.

There are two railroads within the county, the Atchison, Topeka and Santa Fe running from north to south a little east of the center, and a branch of the Colorado and Southern extending into the mountain district on the northwest corner.

CITIES.

The principal cities, towns, and villages are Raton, Gardner, Blossburg, Springer, Elizabethtown, Cimmaron, Maxwell City, and Catskill, all, with the exception of Cimmaron and Elizabethtown, being on the line of railroads, and are doing a good, thriving business.

Raton has a population of 3,800. The Atchison, Topeka and Santa Fe Railroad Company has its second largest machine shops at this point, and employs a large number of machinists. A splendid waterworks system, electric-light plant, and many costly and modern buildings have been erected recently.

Gardner is the headquarters of the Raton Coal and Coke Company, whose output of coal is from 60 to 70 cars per day, and has 76 coke ovens in operation. The coal is mined mostly by the use of electric machines. Here, also, you find a waterwork system and an electric-light plant.

Blossburg, lying within 1 mile of Gardner, was formerly the headquarters of this coal company, and considerable business is still done at this point.

Springer and Maxwell City each have good waterworks systems, and in the vicinity of each 20,000 to 30,000 acres of land has been placed under irrigation and farming has been making rapid strides at these points. At Maxwell City a modern flouring mill handles the wheat raised in the county.

Cimmaron and Elizabethtown are the two principal mining towns in the county. The latter during the past year has been making rapid strides in population and in the development of the mines surrounding it. Nearly all the mineral in the county lies within the confines of the Maxwell land-grant boundaries, but as this company offers the same inducement to prospectors and locaters as does the Government the mines are becoming rapidly developed and much mineral is now being shipped therefrom.

MINES.

The principal paying mines in the county are the Aztec, Black Horse, Montezuma, Red Bandana, Legal Tender, and Black Copper, the former having produced more than $1,000,000. Nearly all of these properties are now being worked on a paying basis. Within the past year two modern and up-to-date mills have been put into operation, one of which is a custom mill handling 40 to 60 tons per day.

Much placer mining is being done in the Ute Creek and the Moreno Valley, situate on either side of Baldy Mountain, also near Cimmaron and Bonita and Uracca canyons. Recent developments have shown that both quartz and placer mining may be carried on at a profit. It is but 25 to 50 miles from all of these mines to the line of the Atchison, Topeka and Santa Fe Railroad Company, and considerable ore is shipped to the smelters at Pueblo and Denver.

PETROLEUM.

Within the past year petroleum has been found in large quantities in the northeastern part of the county, and machinery is now being put in place for the purpose of extracting the same for market use.

LUMBER.

In the vicinity of Catskill seven sawmills are kept constantly at work and several hundred thousand feet of lumber are sawed daily, cut from the finest cedar, pine, and spruce timber.

CATTLE.

About 70,000 head of cattle are grazed within the boundaries of this county, contained in large pastures, one of which covers an area of 120,000 acres, recently purchased from the Maxwell Land Grant Company. The protection offered by the mountains on the west and east, and the dry, crisp atmosphere which cures the native grass when matured, does away with the necessity of cattle feed in the winter.

SHEEP.

One hundred thousand head of sheep are grazed on the plains both winter and summer without shelter, and seldom do their owners sustain loss by the storms of winter.

FARMING.

Considerable farming is carried on in the mountain valleys, where wheat, oats, rye, barley, and all vegetables known to the Mississippi Valley are raised in large quantities, unsurpassed in quality, and with but little cultivation. Alfalfa is the principal domestic grass, producing three cuttings each year.

Corn is grown in small quantities only, the summer nights being so cool as to prevent its maturing.

FRUIT RAISING.

Nearly all kinds of fruit grown in the temperate zone are raised at a profit, apples, pears, plums, cherries, apricots, and nectarines growing in abundance, yielding their producers larger returns than anywhere in the East. All small fruits grow with but little cultivation. The flavor of New Mexico fruit has become widely known, and that grown in Colfax County may be considered a fair average. The trees are free from blight, and the fruit grower has never had to contend with any insects which destroy the profit of the fruit grown in the East.

CEMENT.

Near the town of Springer are several stratums of cement rock, from which the Springer Cement Company produces an excellent quality of hydraulic cement and cement brick for building purposes.

ARTESIAN WATER.

Six miles southeast of Springer two artesian wells have been flowing during the past eight years. The water therefrom is bottled and shipped to distant towns and cities for medical purposes. Chemists have declared it to be the best known mineral water for dyspepsia and kidney ailments. These wells are from 150 to 200 feet deep and produce a 6-inch flow, irrigating large tracts of land.

The small expense in sinking artesian wells offers a splendid opportunity for farmers of small means who desire to farm by irrigation.

DAIRY FARMING.

Three miles east of Raton, on the Sugarite Creek, is the largest dairy farm in the county, containing 20,000 acres of land. A butter and cheese factory produces large quantities of these necessaries, which are marketed in Raton and immediate towns.

EDUCATION.

Within the county are thirty-nine school districts in which school is taught from three to ten months in each year, thus guaranteeing to every child reared within the confines of the county an opportunity for at least a good common-school education. At Raton our teachers are employed ten months in each year. Good salaries are paid, thus securing able educators, who gradually lead the mind from the lower branches to the scientific, and also teach some of the classics and modern languages. Two school buildings have heretofore been used, one containing eight rooms; but the school board during the last year, seeing the necessity of more school room, ordered a new building at an expense of $15,000, which is now in course of construction.

The teachers' institute is held at Raton, the county seat, for a period of two weeks during the latter part of August. Experienced and highly-paid educators are in attendance, thus guaranteeing to each teacher in the county an opportunity to keep in the lead with the onward march of education and general progress in the schoolroom. Each school district in the county has a splendid and commodious school building.

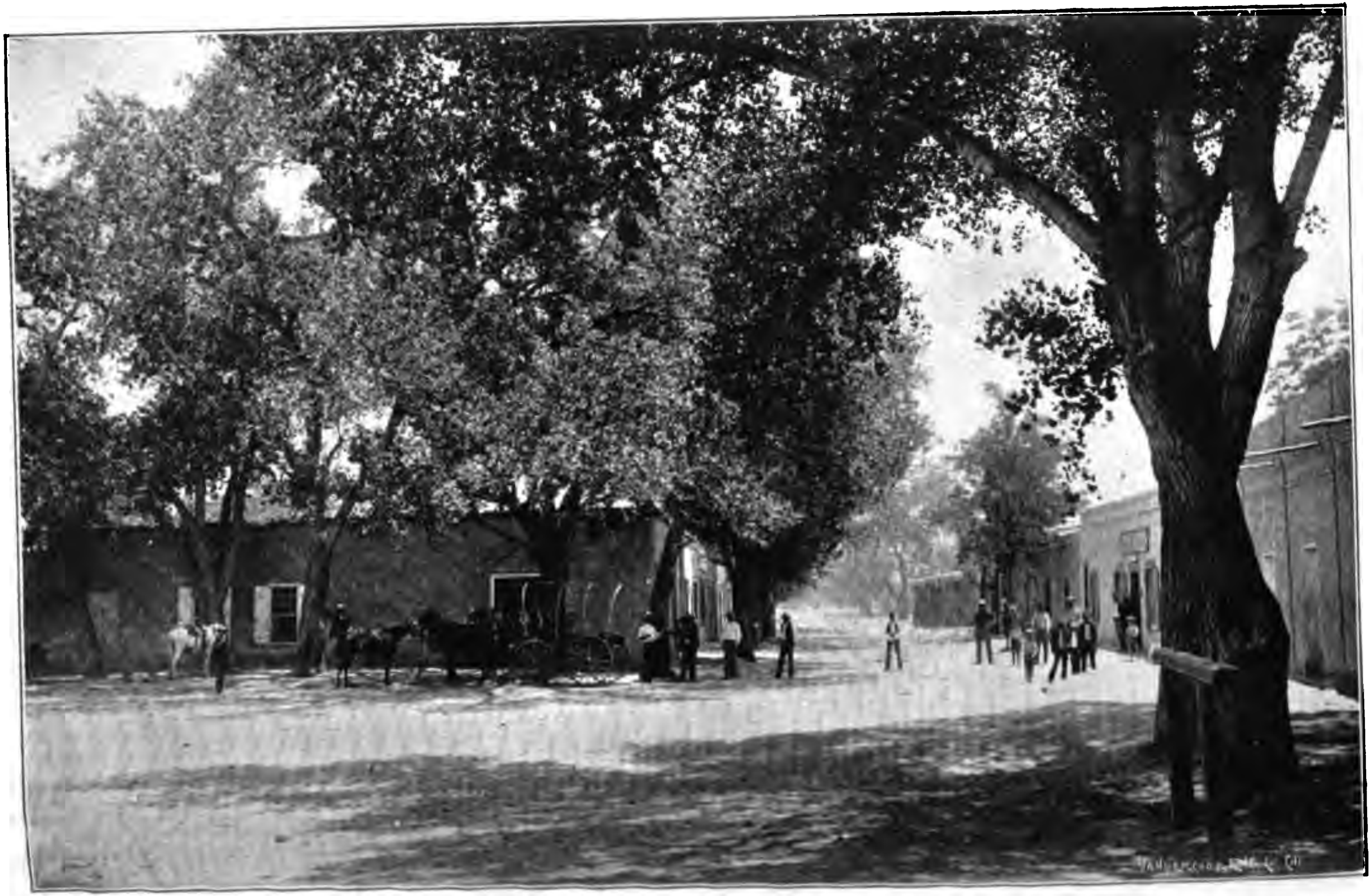
PLUMBAGO.

Seven miles southeast of Raton several plumbago mines have recently been opened up and are now being developed. Several miners are employed, and the plumbago is shipped to Chicago, the headquarters of the company operating the mines, where the crude material is rapidly transferred to the marketable, which is found to be equal to any of that used in the lead pencils of to-day.

DONA ANA COUNTY.

Dona Ana County is situated in the southern part of the Territory of New Mexico, between the thirty-second and thirty-third degrees of latitude and the twenty-ninth and thirtieth degrees of longitude west from Washington.

The resources of this county are mainly agricultural. It is watered by the Rio Grande, which enters Dona Ana County in its northwestern part, and flows in a southeasterly direction through the county for a distance of 100 miles. The valley of the Rio Grande in this county is on an average about 7 miles wide. Part of said valley around Las Cruces (the county seat of said county) is known as the Mesilla Valley, far famed and favorably known for its production of wheat, indian corn, alfalfa, and fine fruits, especially peaches, pears, apples, plums, and grapes, and all kinds of berries, such as strawberries, gooseberries,



STREET SCENE IN MESILLA, N. MEX.

etc. Among the many varieties, one of the best known is the mission grape, the best-flavored grape for table use known in the civilized world. This grape was introduced into Mexico, New Mexico, and California in the eighteenth century by the pioneers of civilization, the Franciscan fathers, who were early missionaries of this country. Therefore the name "mission grape."

All the agricultural lands have to be irrigated in this arid region. The irrigation is entirely dependent on the supply of water from the Rio Grande, and owing to the canals in the northern part of this Territory and Colorado the flow of water in said river is at the present time not sufficient to irrigate said lands, or any portion thereof, successfully during the year; and until a system of storage reservoirs and canals is inaugurated the present state of affairs will continue. In all probability the Elephant Butte reservoirs and canals will be built in the near future—as soon as their legal status has been decided by the courts—and said canals will be able to furnish water to all the lands subject to irrigation in Dona Ana County.

The soil of the Rio Grande Valley is a rich alluvial soil, consisting of the decomposed matter of trees, leaves, limestone, etc., which has been carried as sediment down the Rio Grande and left in the valley by its overflows, which have occurred periodically during the past centuries.

At the present time there are irrigated and cultivated about 32,000 acres in the valley, while there are 35,000 acres more susceptible to irrigation, provided a proper canal system is established, as above stated.

Of the 35,000 acres of land now lying idle, there are about 27,000 acres situated on grants, and the remaining 8,000 acres are vacant United States Government land, subject to the homestead and desert-land entry acts.

Dona Ana County has also about 3,000,000 acres of mountain and table lands which are used for grazing purposes, and furnish grass for horses, cattle, and sheep from one year to the other. In a few years to come, as soon as plenty of water to irrigate with has been obtained, the Rio Grande Valley in Dona Ana County will be the farmers' paradise, as, on account of the climatic conditions existing, the altitude of the valley being on an average of 3,900 feet, the farmer can work all the year round, having very near perpetual sunshine, an even climate, not too cold nor too hot, no snow nor blizzards.

ALFALFA.

This is conceded everywhere to be one of the greatest wealth producers. In this valley it is almost an universal crop. Every farmer grows more or less of it. Without exception as to years, on the 10th of May the first cutting is being harvested, and it is the expectation that three more cuttings will follow, at intervals of about five weeks. But because the citizens have been prohibited from storing the great surplus of water that flows down the Rio Grande at a season when it is not needed, the number of cuttings is sometimes reduced to two. Some farmers are growing alfalfa for market on quite a large scale. One farmer usually sells about 700 tons, besides feeding a large amount to stock. Several others do about the same, but the actual statistics are not at hand. On account of the superior grade of cured alfalfa produced here, it brings a higher price in market than that produced in many other places.

WHEAT.

Perhaps there is no other spot in the United States where wheat of the very highest grade is more certainly produced than in this valley.

It knows no enemies or pests of any kind, no rust, no chinch bug, nor anything else to interfere with its growth and maturity. While it is not raised on a large scale by anyone, it is so universally grown by all farmers, large and small, for home consumption, that four flouring mills are sustained in the valley.

INDIAN CORN.

This valuable cereal grows to perfection. It is no exaggeration to say that, both for quality and quantity per acre, this valley will rival the Missouri and Wabash bottoms. Under favorable circumstances a crop of corn can be grown from the same land from which the crop of wheat has been grown in the same year.

FRUITS.

Nearly all deciduous fruits grow well, and some of them do better than in almost any other place. Among these may be named peaches, which in the Mesilla Valley are equal to the finest to be found in any part of the world, both as to size and flavor. During this season (1899) when the peach crop has been a failure in many parts of the United States, here it has been large. From one orchard over 7 full carloads of early peaches were shipped, besides the large amounts sold at retail and in smaller quantities. Apples, pears, quinces, plums, and prunes are grown in the greatest abundance and are of most excellent quality. The codling moth here, as elsewhere, is giving the apple grower some trouble, but it is hoped that some means will be found to overcome its ravages.

GRAPES.

The summer climate here seems to have a peculiar value in converting the starch of fruits into sugar. For this reason the grapes grown in this valley are thought to possess a richness of flavor seldom found in any others. Many varieties are grown, but the Mission, the Muscat, and the seedless are leading varieties for shipping purposes.

VEGETABLES.

Vegetables of nearly all kinds, except Irish potatoes, do well, and are grown in abundance for home consumption and for shipping. Cantaloupes and watermelons are exceedingly fine and delicious. Particular notice may be made of the tomato. The raising and canning of tomatoes has become quite an industry, and the product of the Mesilla Valley canning factory brings in open market a price much higher than those produced elsewhere. Mr. Theodore Roualt is growing the present season about 300 acres of tomatoes, and expects to can and ship about 30,000 cases of same and 6,000 cases of canned green chile.

There is but one thing in the way of making this valley a "farmers' paradise"—our inability to store the waste waters of the Rio Grande.

LABOR SUPPLY.

Owing to the proximity of this county to the border of Mexico, the supply of common laborers is fully equal to the demand. Skilled artisans command fair wages, especially carpenters. During the past year or so miners have been in demand, at customary wages, and the prospects are that increasing numbers will be employed as the new mines are opened up.

PUBLIC BUILDINGS.

Las Cruces, the county seat of Dona Ana County, possesses a very pretty and commodious brick court-house, finished with stone, surrounded by beautiful grounds; a large brick schoolhouse, a large hall, and an academy conducted by the order of the Sisters of Loretto. Union Park is situated just diagonally across the street from the court-house grounds; this park has a large pavilion in the center. It is most beautifully laid out and planted with trees and flowers, which line broad avenues, and was an inception of the "Woman's Improvement Association," a club composed of the foremost ladies of the town.

The following religious denominations have church edifices here: Catholic, Methodist Episcopal, Methodist Episcopal South, Methodist mission, Presbyterian mission, and Presbyterian. About 2 miles south of Las Cruces, at Mesilla Park, are located the buildings and grounds of the New Mexico College of Agriculture and Mechanic Arts. The main building is a fine structure of two stories and a basement, consisting of thirteen rooms. Science Hall, a large two-story brick building, contains eleven large recitation rooms and five smaller ones. There is also an engineering building, girls' dormitory, seed house, and a large greenhouse, and numerous auxiliary buildings.

The college farm contains about 250 acres, all in cultivation, one-half being river-bottom lands.

SOCIAL AND INDUSTRIAL PROGRESS.

It is essential to the highest development of any community that its members have a common language. The older generation of the native people of this county, as in all other counties of the Territory, have been born under another Government, with another language, and can not be expected to speak English. However, it is an encouraging fact that by far the larger portion of our younger native-born citizens speak more or less English, and it is a further noticeable fact and truth that each succeeding generation commands a freer use of the English language.

The native people who formerly used primitive implements in their agricultural pursuits are rapidly adapting themselves to better and more modern methods.

MINES AND MINING.

In the southeast corner of New Mexico is situated the Organ Mountains. If this mineral formation was in Colorado, Montana, Idaho, or any of the Western States in which active mining and prospecting is carried on there would be to-day 5,000 men at work. Commencing at the Modoc mine, on the extreme south end of this formation, minerals in good paying quantities have been found at intervals that have extended as far as the great copper deposits of the San Andreas, 70 miles to the north. The contact of lime and granite is without a break the entire distance. The Modoc mine has been developed to a depth of 160 feet by a shaft. The ore has increased in value and worth with every foot sunk. At the bottom this vein is 15 feet wide, and 30 per cent lead ore. With lead at the present price this would be a very valuable mine if situated in Colorado. The Bennett-Stevenson mine on the same contact, about 6 miles to the north, has been a large producer since the early sixties. The production for the year 1898 (mining what had been left behind) was in excess of $40,000. No work has been done on this mine below the water level. About 2 miles farther north the Torpedo mine is producing a carload per week of 20 per cent copper ore, the work of two miners. The Memphis, adjoining the Torpedo, has been a great producer of copper and high-grade silver ore. At present this mine is only operated to furnish water for the Bennett mill. Still, on the same contact extending to the north is the Jay Gould mine, shipping high-grade ore, copper and silver. The Merrimac, Little Buck (that produced $35,000 in silver in a few days), the Edison, Brown and Haffore, McLaughlin, Thompson, and Roualt, and other propositions all show veins of lead, copper, and silver in paying quantities when the right people come along and take hold of them. The Bear Canyon mines of Messrs. Bennett & Friedenbloom will some day be immense producers of lead and silver. At the head of St. Nicholas Canyon are found the finest indications of the existence of lead and silver ores yet to be found. The great San Andreas copper deposits are now shipping high-grade copper ores to El Paso. The Atchison, Topeka and Santa Fe Railroad contemplate putting in good roads to these mines to secure the freighting of the ores. This is truly a wonderful contact, but it needs new blood, with energy and capital. It will then give employment to thousands and add vast wealth to the Territory.

CLIMATE.

Dona Ana County, in common with the other sections of New Mexico, can lay claim to a health-giving climate; but apart from the generally favorable reputation of the Territory, as a whole, this county, embracing as it does the famous Mesilla Valley, has advantages from a climatic and public-health standpoint which are unparalleled. That modern scourge, typhoid fever, is very little known in this region, and the ordinary zymotic diseases are only occasionally seen. Among the native population tuberculosis is almost unknown, though of late years several isolated cases have come under the writer's notice.

The excellence of the health of school children is very noticeable, and is well attested by the records of attendance. As a location for the rearing of children where they may escape the various illnesses to which their age predisposes, Dona Ana County can have no superior.

The climatic advantages of this section are manifold, as will be readily understood from the following condensation of the United States Experimental Station reports: During the last five years the average number of sunshiny days has been three hundred and forty-eight; the relative humidity during the winter months being 34. This maximum amount of sunshine and unprecedented atmospheric dryness, combined with the pure air which our mountain situation affords and the equability of temperature which our moderate altitude insures, makes the Mesilla Valley, the "pride of the county," an ideal health resort. In fact, it is nature's great sanitarium. These wonderful climatic conditions have been taken advantage of in the establishment of numerous resorts for the care of patients with incipient pulmonary diseases. At the present writing a sanitarium is under construction at Las Cruces which will be a model of its kind. The purpose of the company is to erect a large main building, 42 by 100 feet, two stories high, containing twenty-two great rooms, library, dining rooms, and smoking rooms; the whole to be surrounded by large verandas, with a southern exposure. Within easy access are to be erected several single-story cottages, after the style of the Saranac Lake Sanitarium. It is hoped in time to make the main building an administrative building and all invalids to be housed in the adjacent cottages, following in the lines of other institutions of similar purpose. There is under consideration two more institutions of this character.

It has given much pleasure to the writer to see this part of New Mexico attract such attention from the medical profession. At the last two meetings of the American Medical Association, held respectively at Denver, Colo., and Columbus, Ohio, the writer presented papers dealing with the climatic therapeutics of southern New Mexico, and it was very gratifying indeed to note the general favor in which they were received.

That Dona Ana County has a bright future before it nobody will deny, for it possesses many of the requisites for securing such, not the least of which is its wonderful climate, attracting as it does the best class of citizens from all parts of the universe.

THE ELEPHANT BUTTES DAM.

The greatest setback this section has ever had was that resulting from the stopping of work on what is familiarly known as the Elephant Buttes dam. A brief history follows:

A company known as the Rio Grande Irrigation and Land Company, Limited, of London, acquired the rights of the Rio Grande Dam and Irrigation Company. The object of this company was to store the overflow waters and irrigate the Rio Grande Valley in the southern part of this Territory. Of this overflow water there is an immense quantity that goes to waste every year, as there are no dams on the Rio Grande to store these waters.

The general plan of this company was to construct a mammoth dam at the Elephant Buttes, near Engle, N. Mex., and form at this point the largest storage reservoir in the world. In addition to the large dam, a series of smaller ones were to be constructed, together with canals, and by this means bring under irrigation and cultivation hundreds of thousands of acres of the most fertile land on the continent.

Work on the smaller dams and canals was commenced in November, 1896, and continued until the spring of 1897, upward of $90,000 having been expended. At this point the United States brought suit to enjoin the company from building the storage dam. Work had to be stopped, and that already done was left in such a condition as to be subjected to great damage by the annual floods. The ground for seeking the injunction was that the Rio Grande was a navigable stream.

This claim is preposterous. The Rio Grande is not and never has been a navigable stream, except where it is affected by the tide. The true secret of the attack can be found in the effort of certain persons to have constructed at El Paso an international dam, and under the impression that the Elephant Buttes dam would interfere with their plans and monopolize the water, they oppose the enterprise. A careful investigation goes to show that, instead of the Elephant Buttes dam monopolizing all the water, the reverse would be the result, and the people at and near El Paso would have more water after its construction than before.

It is to be hoped that this question will shortly be settled, and the company permitted to resume operations, for with the completion of this work will blossom forth one of the richest agricultural, fruit, and dairy sections in the West. It will outrival California, and supply the East with a superior and better quality of fruits and vegetables than can be produced in any other section of America.

EDDY COUNTY.

The county of Eddy is fast demonstrating the fact that it contains within its boundaries all the possibilities for making it one of the greatest agricultural centers in the Southwest. That its vast irrigation system has had much to do with its present prosperity and the brilliant future that is now at its very doors, there is no manner of doubt. It was only when that system was first inaugurated that the growth of the Pecos Valley really began, and it may truthfully be said that since that time the growth of the various industries in Eddy County has been phenomenal. It might be imagined that the one great interest that takes precedence over all others in this Western country, namely, that of cattle raising, could not be affected by irrigation. Nothing could be farther from the truth. Irrigation has brought cattle into the country by the thousand. It has concentrated the interests of their owners in their establishment of one of the largest shipping points in the Southwest at Carlsbad; it has been instrumental in making the town not only their headquarters, but also the home of many of them.

As to the live-stock industry in the county, it is estimated that during the past year it has been increased just one-third—that is to say, that the value, as well as the number of the herds and flocks, has appreciated one-third over the estimates made last year. The Pecos Valley and Northeastern Railway, the extension of which was opened for business between Roswell and Amarillo on the 24th of February last, report that during the spring they transported over their line from all points over 130,000 head of cattle. Of this immense shipment it is safe to say that at the least three-fifths originated at Carlsbad or in the territory tributary to it. Not only did the county show progress made by the number of cattle shipped, but a more valuable feature by far was made apparent—that the grade of the stock was equal, if not generally superior, to that of stock shipped from older communities south of here. This is explained by the fact that the cattlemen of the valley, having been generally successful during the past two years, have invested a large portion of their profits in the purchase of a higher breed of cattle than those of other districts. Proportionately as much fancy stock has come into Eddy County during the year as into any cattle county of Texas. Herefords are, and apparently always will be, the favorite here, and after them comes the Durham as a close second. A very conservative estimate of the number of cattle on the ranges of the county, or immediately adjoining it on the east, places the number at close to 500,000 head, in herds going from 1,000 to 60,000. When it is said that the owners of this vast number of food animals are actively breeding them up to a standard of excellence that will gain for them the very highest prices paid in the great cattle centers for choice beeves, some idea of the progress made in this one great industry alone may be arrived at.

As to the sheep industry of the county there is no doubt but that it has been nearly or quite doubled during the past year. The constantly advancing price paid for wool, the active demand from Kansas City and Chicago for alfalfa-fed lambs have had much to do with this, especially when the exceptionally fine feed for flocks is considered, and one other matter that is a powerful incentive to sheep men to bring their sheep this way, and that is the fact that so far as known this section is the only one in the entire West where there is no friction of any sort between the cattle raiser and the sheep man. The following item, taken from the American Sheep Breeder, of Chicago, sets forth in most unmistakable language reasons why southeastern New Mexico is shortly destined to become one of the greatest sheep-raising centers of America:

> The importance of the sheep-breeding industry on the Pecos River is gradually but steadily increasing. South of here, on the Rio Grande—the great dividing line between the United States and Mexico, a muddy creek, dry for most of the year, and which cost the United States $13,000,000 in 1847 to establish as a national

boundary line—there is to-day probably more sheep than in any other section of the United States of anything like the same area. From the proximity of this district to Mexico, and the facility with which sheep can be brought in from Mexico and the import duty evaded, it is very unlikely that the flocks there will ever be remarkable for anything but numbers, for although the "Dons" across the river have, for the past two or three years, been breeding up their cattle, the shipment of a well-bred lamb into the Republic is of anything but frequent occurrence. Mexican sheep to-day are practically what they were twenty years ago, or fifty, for that matter—straddling, rawboned animals, built for speed rather than for mutton. The appearance of a flock would suggest to one that it would take a dozen generations of careful breeding to bring them up to anything like the standard of the most ordinary animal seen on northern pastures.

Now this vast region, extending along the river for upward of 300 miles, and embracing within its area some six or eight of the largest counties of Texas, is virtually given up to sheep. Native and foreigner alike look for a living from their flocks, and the cattleman is decidedly in the minority. Notwithstanding all this, this district is not sought by progressive sheep men who raise sheep for mutton as well as for wool, and these men are gradually moving their flocks northward up the Pecos River into New Mexico. The advantages they derive from leaving the Rio Grande country are twofold: First, they lessen the danger of their flocks becoming mingled with the poorly bred Mexican animal, and so losing a year's labor and the expense they have been to in an effort to breed up their sheep; and next, from the fact that wild animals of the depredating sort are as plentiful on the Rio Grande now, or nearly so, as they were ten or twenty years ago. This is not to be wondered at, as sheep men are not nearly as apt to form clubs and pay scalp bounties to protect a sheep worth $1 to $1.25 as they would be if the same sheep was worth $2.50 to $3.50. Some of the stories of the depredations of coyotes, lobo wolves, panthers, and mountain lions among the flocks almost surpass belief. Whether altogether true, or only partly so, it is certain that the losses there from this source are greater than a man with a flock of even passably well-bred sheep could afford to stand. For this reason as much as for the one first named, the Pecos country is slowly filling up with a class of sheep men who mean to make the most out of their animals in a practical and businesslike way, and that, of course, means "breeding up" to a standard that makes mutton that will bring money in a market like Chicago. As a matter of fact, there are many sheep raisers, or rather woolgrowers, in northern Mexico or in extreme southern Texas, whose flocks are so particularly poor in blood that if a carload of them should be unloaded at the Union Yards in Chicago they would excite as much curiosity as so many coyotes would, and whose ultimate destination would be the soap factory. The Pecos Valley hopes in time to breed up its flocks as well as its herds, and the time is not far distant when a steer or lamb fattened on the Pecos River will carry with it a reputation similar to that which a Scotch turnip-fed steer or a Southdown commands on the London market.

The cultivation of the alfalfa clover and its prolific yield was the first product that drew attention to Eddy County. It, in fact, made it famous. The wonderful fertility of the soil, as evidenced by this one product, was so pronounced that even the attention of the Department of Agriculture was directed to the valley, and for three months of the present year this Department maintained two of its experts from its division of soils—Messrs. Means and Gardner—in this locality making exhaustive and critical tests of the different strata and noting the different products that appeared to thrive best in the various localities. Later in the summer the Department dispatched two others, attachés of the division of biology—Messrs. Higginson and Bailey—whose mission was to make an examination on the lands in the neighborhood of Carlsbad strictly with reference to their adaptability to the culture of the sugar beet. Their verdict, after a close examination, was that the sugar beet had its natural home in this county, and that the industry was as yet in its veriest infancy.

RAILROAD FACILITIES.

The completion of the Pecos Valley and Northeastern Railway to Amarillo, as noted above, now gives that road a total length of 370 miles, its southern terminus being located at Pecos City in Texas, on the Texas and Pacific Railway. It places Carlsbad within twenty-four hours' ride of Fort Worth and Dallas, Kansas City thirty hours, St. Louis forty-eight hours, and Chicago fifty-two hours. Connections are made with three trunk lines, two at Amarillo, the Atchison, Topeka and Santa Fe, and the Denver, and with the Texas and Pacific at Pecos.

THE CLIMATE.

The Territory of New Mexico has for many years been renowned for its perfect climate, its absolute freedom from all malarial complaints, and the wonderful effect it has in pulmonary diseases when not too far advanced. Men are living in Eddy County to-day who came here ten years ago to die. The equable weather, the dry and bracing atmosphere at once asserted their power and begun to heal the torn and bleeding lungs and quiet the troubled nerves. It is a climate, too, that appears to infuse new vigor both in the body and in intellect. The desire of the old Roman to have "Mens sano in corpore sano" (a sound mind in a sound body) finds its living realization on the streets of Carlsbad in the person of nearly every man that has made the valley his home for any length of time. The mean temperature of the summer is 80°, seldom exceeding that figure, and in winter 42°, while for spring and autumn it is 60°. The following from the pen of Dr. C. H. Wright, one of Carlsbad's leading physicians, verifies the above statement:

> During the last few years the medical profession has made great progress in the study of climatology as a relief and benefit to nearly all constitutional diseases. The climate of southeastern New Mexico, and especially the Pecos Valley, is rapidly becoming known as a panacea for all bronchial and lung troubles, as well as great benefit to stomach and kidney derangements. This fact is thoroughly substantiated by the multitude of cures which have been effected here in the last ten years. The Pecos Valley has been well described as the natural sanitarium of the world, and why? First, because we have all the requisites to make a complete health resort, namely, a dry air, a pure air, an air of moderate temperature, not contaminated by passing over swamps or through large cities, but coming direct from mountain ranges, and contains nothing but life-giving elements. Second, we have what but few places in this region can boast of, pure water, as well as springs containing medical properties which are a benefit to stomach and kidney troubles. Last but not least, the almost perpetual sunshine. The absence of sudden changes of temperature is one of the strong features of this section, which is a great aid in all forms of diseases or weakened conditions.
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> During the last year the county of Eddy has had no more deaths among the residents from disease than you could count on your fingers, which speaks well for a population of over 3,000 inhabitants. Although we have had an epidemic of measles which traversed the whole county during March, April, and May, there has not been a death reported either from the disease itself or complications, which is sufficient proof that not only is the climate a benefit to chronic troubles, but greatly modifies the acute infectious diseases. One coming to the valley for the first time from the north must evidence surprise at how little he suffers from the heat. We have no sultry days followed by more sultry nights. The nights are clear, cool, and refreshing. The population of Carlsbad and surrounding country is largely made up of people in search of lost health. To-day they are energetic, strong, and enjoying the best of health. These are our best advertisements. In my two years' practice here I have not seen a single case of pulmonary trouble but what was benefited by the climate, and I believe my fellow practitioners will testify likewise. The great point for physicians sending patients here for beneficial effects of this climate is not to wait too long. But all cases of pulmonary trouble will be benefited if the decided firm grip of death does not expect to claim him in a few days.

MINERAL SPRINGS.

About a mile northwest from the town of Carlsbad, on the banks of the Pecos River, is a group of springs that in times past were thought to be remarkable merely from their unparalleled flow of water, two of the largest emitting a stream at all seasons, wet or dry, of over 5,000 gallons a minute each, and the others of lesser amounts. A year or more ago, it having been noticed that the water of the larger of the

FOUR-YEAR-OLD APPLE TREE, PECOS VALLEY.

two springs appeared to be strongly impregnated with minerals, it was suggested that it be analyzed. The result was that the waters were found to be almost analogous with those of the great mineral spring at Friedrichshalle, in Germany. The spring was then named Carlsbad. The rapidity with which the healing qualities of its waters became known, the almost instant relief it gave to stomach and kidney troubles that had stubbornly resisted medicine, and its effects on rheumatic complaints called so much attention to this locality that it was determined to change the name of the town, then known as Eddy, to the name of the spring, Carlsbad. This change was effected by a popular vote on the 23d day of May 1899.

GEOGRAPHICAL SITUATION.

Eddy County lies between the thirty-second and thirty-third degrees of latitude, the two degrees forming almost exactly the northern and southern boundaries of the county. Its altitude is 3,200 feet. It extends north and south 66 miles and east and west 95, being rectangular in shape and containing about 6,300 square miles. Of this area the lands bordering on the Pecos River, extending from 3 to 10 miles on either side, are of extraordinary fertility, producing, wherever water is introduced, every cereal, vegetable, and fruit known to the temperate zone in abundance and with unfailing regularity. The balance of the land is strictly pastoral, and the nutritious grasses with which it is for the most part covered are producing now as excellent cattle as are to be found anywhere in the Territory.

THE IRRIGATION SYSTEM.

This all-important feature in the development of the country is naturally the first one about which inquiries are made by prospective immigrants or investors. Taking the irrigation system of the valley as a whole, it is beyond all question the largest in America, and the immense sums that have been expended on it make it the most complete as well. In Eddy County there are two large artificial lakes, covering a superficial area of some 10,000 acres, with a capacity of 100,000 acre-feet—that is to say, holding sufficient water to place 1 foot of water on 100,000 acres of land. There are now in active operation 40 miles of canals and main laterals, so arranged that at any time they can be extended in any direction. The main canals are from 30 to 45 feet in width, and constructed in the most substantial manner. The annual water rent imposed by the irrigation company of $1.25 per acre is said to be the smallest fee for similar service in the United States, and thus far in its history this company has never caused a dollar in loss to its customers by a failure to supply them when needed.

PRODUCTS.

It may be said that up to this time the soils of Eddy County have developed peculiar fitness for four different products, all of which they produce, when properly irrigated, with regularity and in abundance. These are fruit, alfalfa, vegetables, and the sugar beet. It is to these that the county thus far has looked for its permanent and positive advancement as an agricultural center.

As to its fruits, while nearly every variety thrives and makes rapid growth, the peach produces most abundantly, and in size, flavor, and appearance it fully equals any raised in the country. The orchards are absolutely free from bugs or fruit pests, and a specked or wormy peach or apple is unknown. During the present year from the Rio Pecos orchard alone, an orchard covering but 16 acres, over 3,000 boxes of the very finest fruit will be shipped, and the demand is such for fruit from this section that not one-half of it can be satisfied.

Alfalfa produces on an average 5 tons to the acre annually, in four and sometimes five cuttings, and what might be called almost the standard price for the hay in Carlsbad is $10 a ton, with a demand that usually exceeds the supply. Many cattle feeders who this year propose fattening cattle and sheep are leasing alalfa pasture for which they pay $5 an acre for the season. Beef and mutton fed on this sweet and nutritious clover acquire a flavor contributed by no other fodder.

Of the minor sources of revenue—that is to say, those requiring a smaller capital to start them—the raising of vegetables presents a field of profit in this country for which it would be hard to find a parallel anywhere. In the first place, there is always a large home market, and the prices obtained are always highly satisfactory to the grower. One man last season cleared $5,000 on 20 acres of celery. As to asparagus, there is just sufficient alkali in the soil to not only render the cultivation of this esculent very easy but highly profitable as well. It matures in the spring fully a month earlier than in the North or in Texas, and consequently commands a high price. Other vegetables, in fact nearly every sort, thrive in the rich river bottoms of Eddy County, and with a few acres, 5 or 10 at most, a man with a little money for seed and a few farming implements can not only make a good living the year round, as the soil can be worked to advantage here every day of the 365, but he can in a short time render himself independent of the world.

In conclusion it can be said that it takes no prophetic eye to foretell the future of this country. The evidences are at every hand, standing forth legible as the hills, clear as the noonday. Wherever the hand of man has introduced water upon these hitherto arid wastes he changes them into fertile and productive fields, rich with the fruits of the earth. He stands astounded at the result of his own handiwork. He finds that here amidst the brown hills and the sage-brush deserts of the Great West an oasis of shade and verdure has appeared, destined, like the great banyan tree of the forest, in the coming years to yield shade and fruit to wide neighborhoods of men.

GRANT COUNTY.

The past year has been one of unprecedented prosperity in Grant County. The two principal industries of the county, cattle raising and mining, have proved more than ordinarily profitable. The high prices obtaining for cattle have enabled many of the stockmen to acquire residences in the cities and towns, where they avail themselves of the greater educational facilities for their children.

In mining, phenomenal success has been attained. Never in the history of any of the Western States and Territories have there been made such rapid strides in the development of the wonderful mineral resources of the West.

AGRICULTURE.

The agricultural resources of Grant County are but little developed, and yet the area under cultivation would supply an abundance of food products for the inhabitants of the county if properly managed and cared for. The principal agricultural section of the county at present is on the Mimbres River, a small stream situated in the eastern portion of the county. There are now about 20,000 acres under cultivation upon this stream which furnishes the water for irrigation.

It is proposed to build a system of storage reservoirs which will store sufficient water to irrigate 100,000 acres of the choicest land in the West, which lie just below the site chosen for the main dam. Negotiations have been completed whereby the company will acquire title to this land, and within a few months work will be commenced upon the dam and reservoirs. The land will be colonized with thrifty farmers from the East, and hundreds of thousands of dollars now sent annually from this county to Eastern States for hay, grain, poultry, eggs, butter, and other farm products, will be kept at home.

The company is composed of Chicago capitalists, and is known as the Rio Mimbres Dam and Irrigation Company, with A. R. Burkdoll as resident manager. The company now has a lesser experimental irrigation system at work, and has 1,000 acres of land under cultivation. Here there is found the first producing canaigre farm in the United States. The cultivation of this crop is bound to soon prove a profitable and extensive industry, as it has been fully demonstrated that the valley of the Mimbres produces canaigre of superior quality to that grown in any other part of the world. The poorest of the many samples analyzed for the Rio Mimbres Dam and Irrigation Company gave returns of 30 per cent of tannic properties, while the canaigre tubers grown in other localities give 11 to 25 per cent of tannic values. This company has 200 acres in canaigre. As the canaigre tuber at two years' growth produces 12 tons per acre, and the product is worth $6 per ton upon the ground, when dug, it is plain that a canaigre crop is a very valuable one, and is obtained with less labor than is generally expended on other crops which give anything near as good cash returns.

There are thousands of acres upon the Mimbres producing fruit of superior quality, the peaches and apples competing successfully with those raised in the States, as, in fact, many carloads of apples especially have been shipped to the East and to Arizona. Fruit grown in the foothills of the Mimbres Mountains may have equals elsewhere, but superior it would be difficult to encounter. A fortune awaits the happy man, who, having the means, has the business foresight to erect a canning plant in that neighborhood.

On the Gila River, to the north and west of Silver City, there are about 5,000 acres under cultivation, one-fifth of which is operated by the Gila Farm Company, which, besides raising all of everything required for home consumption, produces all kinds of fruits of the finest grades obtainable anywhere. A small apiary on this farm produces 10 tons of honey annually. With storage reservoirs and dam properly constructed the area of tillable land along the Gila could be increased to 50,000 acres.

LIVE STOCK.

The cattle interests of Grant County are by no means an insignificant feature of wealth, amounting as they do to a considerable sum of money yearly to the thrifty stock grower. Grant County is by far in the lead of any other section of the Territory in this important industry. The shipments for a number of years past have been unusually heavy, that of 1898 aggregating in round numbers $1,000,000 in value. Silver City is the largest shipping point for cattle in southern New Mexico, and during the busy season the festive cow puncher is a familiar sight upon the streets. The stock yards south of the city are large, easy of access, and supplied with all the modern conveniences. Stock from all the northern and western sections of the county ship from here, as also frequent shipments from southern Socorro County. The Santa Fe system pays special attention to this large and lucrative branch of their business.

The recent rise in the prices for beef cattle has proven an incentive to stock growers, and they are consequently giving the subject of better beef their strictest attention. The stock cattle of this immediate vicinity are of a high grade, and the profits are accordingly great.

twos, and threes. The ranges, both mountain and valley, are good this year, as rains have been abundant and cattle had fared well during the winter last past. Sheep and goats, of which there are quite a number in this county, have proven remunerative to their owners as food producers, while the wool and cashmere fleeces have been disposed of at fancy figures. The stockmen of this section all wear smiling countenances, and some of them diamonds. Their bank rolls have increased amazingly during the past six months, and fall sales promise to greatly add to their already plethoric purses. Cattle passed through the winter well and the calf crop this year is good. The outlook is decidedly encouraging and the stockmen accordingly in happy spirits.

Hog raising has hardly as yet become a distinctive industry, although there are several small concerns in operation in the Burro Mountains, where mast is plentiful. A few farmers along the Middle Gila who raise corn extensively and who have no immediate market for their crops put it into pork, which readily brings 5 and 6 cents per pound in Silver City.

There are a few extensive horse farms in the county, but they are mostly conducted in connection with the cattle ranches, as riding ponies are a prime necessity to the cow man and are constantly in demand to replace worn out and aged stock.

HOT SPRINGS.

There are a number of mineral springs in the county, some of which have proven to possess remarkable medicinal qualities. The celebrated Hudson Hot Spring, located about midway between Silver City and Deming, on the line of the Atchison, Topeka and Santa Fe Railroad, has already achieved a wide reputation as a health and pleasure resort. The temperature of the water registers 142° F., and is almost a sure cure for rheumatism, blood and kidney diseases, and various other complaints.

The hotel accommodations are of a superior quality, and during the summer months no more delightful pleasure resort can be found in the country.

The Gila Hot Springs, 50 miles north of Silver City, are much sought for their medicinal qualities, but the accommodations are not as good as they might be. Camping, hunting, and fishing parties to the higher Mogollon country frequently make this a stopping place, and the ladies of the party enjoy themselves here while the men folks go up into the mountains after large game, which can be found in abundance.

SILVER CITY.

The county seat of Grant County is located in a pretty mountain valley surrounded on all sides by rolling hills, which serve to protect it from high winds. The altitude is 6,021 feet above sea level; the average yearly rainfall for a period of twenty years was 14.18 inches; the mean annual temperature is 55°, the average for the summer months being 72°. On the coldest of winter nights the thermometer rarely falls lower than 12° or 15° above zero, while the days are always temperate, ranging from 45° to 70° in the middle of the day.

In summer time the thermometer ranges from 70° to 90° during the day, seldom reaching 96°, while the nights are delightfully cool, having an invigorating effect upon the system. These temperatures, taken in connection with the dryness of the atmosphere in this latitude and at such an altitude, renders it one of the most delightful climates of the world, its recuperative and health restoring properties being attested by thousands who have come from other climes to enjoy its beneficial effects.

It is a thriving and prosperous town of 3,500 inhabitants, the American element largely predominating. The population of Silver City will, in point of intelligence and education, compare favorably with that of any town of like size in the world, and it is fully equal, if not superior, to any community in the United States as a law-abiding body of citizens. Larceny, burglary, and kindred crimes are comparatively unknown, while civility and politeness mark the demeanor of all whom you meet.

It is one of the most substantially built towns in the United States, brick and stone being used exclusively—not a frame building within the city limits. There are four churches, Methodist, Episcopalian, Catholic, and Presbyterian, each of the edifices being a credit to the congregations which built them.

The educational facilities are better than in most towns of similar size in the Eastern States. The first public school in the Territory was organized here, and to-day has a very large attendance. Besides the public school, the Territorial normal school is located here. The institution is one of the best in the country, its fame as a thorough training school for teachers inducing pupils from other States and Territories to come here to complete their education and training in their chosen profession. The Sisters of Mercy conduct the Academy of Our Lady of Lourdes, where many Catholic children receive a liberal education under the beneficent care of the good Sisters.

Silver City is the supply point and distributing station for a large area of territory, which thus becomes tributary to it. It is thus rendered a very prominent mercantile as well as financial center, and a great amount of business is done by the merchants, as also an enormous volume of financial exchanges is transacted through the medium of the Silver City National Bank, a conservative banking house wherein all the most approved business methods are in vogue.

The city has a first-class waterworks system, as well as an electric-light plant of the latest improved design, each owned and operated by a private corporation. All of the most modern conveniences and luxuries of civilization are enjoyed by the residents of Silver City.

DEMING.

The second town in population and commercial importance of Grant County has 2,000 inhabitants. It is a port of entry for cattle and other imports from Mexico. It has a fine schoolhouse and a good corps of teachers, and the attendance is quite large. A very large area of cattle-raising country, extending 50 miles south to the Mexican boundary line, is tributary to this city of the plain, as also the following mining camps find here their base of supplies and mercantile center: Hachita, Volcano, Apache, Tres Hermanas, Cooks Peak, and Florida. It has two churches with comparatively large congregations, an opera house, waterworks system, with the purest water found in any town in the world, and all modern conveniences.

The town site is laid out upon one of the most attractive and desirable plateaus of the Southwest, having an altitude above sea level of 4,800 feet. Situated as it is at the junction of two great continental railways—the Atchison, Topeka and Santa Fe, and the Southern Pacific, which span the continent—and the Sierra Madre and Pacific, and the Sonora, Sinaloa and Chihuahua roads now under active construction, which will afford practical means for the development of the great industrial resources of the States of Sonora, Chihuahua, and Sinaloa, in northern Mexico, it is especially designed to offer every inducement to the various manufacturing interests of the country, the best facilities for handling the enormous amount of traffic growing out of the development of the great mineral, agricultural, and pastoral resources tributary to Deming.

Commercially considered, the location gives to the town superior advantages, and the completion of the Southern lines of railroads into the Republic of Mexico, in connection with those already established, will give to Deming the prestige of being a center of wealth, of commerce, and manufactures in a Territory whose area is an empire in extent, the resources of which embrace every known article used by civilized man.

MINES.

The mountains, which occupy fully one-fourth of the area of the county, are pregnant with all of the minerals and metals most useful to mankind. Gold and silver have been produced from the mines for a quarter of a century past, while Grant County is proud of the distinction of having the oldest copper mine in the United States—the Santa Rita del Cobre, which was worked by the Spaniards more than a century ago. Enormous veins of the richest and purest iron occur at several places, hundreds of tons of the ore being shipped daily to the iron and steel works at Pueblo, Colo., and to smelters at other points.

Ranking first among the mining facilities of Grant County should be enumerated the Silver City Reduction Works. This smelting plant, which one year ago was handling 60 tons of ore per day, has grown in capacity, as it has grown in favor with the miners of the Western States and Territories, until it now has a capacity of 240 tons per day. It draws its ore supplies from all parts of New Mexico, from Arizona, Utah, Colorado, California, and Old Mexico. This rapid progress and success is due to honest, capable, and efficient efforts of the officials in control of the concern. The works are owned by the Hearst estate, with Bev. Risque as president of the reduction company and S. E. Bretherton as general manager. It gives the miners a home market for their ores and saves the cost of transportation to distant smelters.

By the use of very recent improvements, patented by members of the company, the cost of smelting has been reduced to the minimum, and the saving thus made is shared with the miner, which in a great measure accounts for the rapid growth of the works.

SANTA RITA.

The copper mines of this district are proving to be of phenomenal richness and extent. This wonderful body of ore is without parallel in size, and the percentage of copper greater than in any large copper mine known. Geologically, it is an isolated occurrence, conforming to none of the heretofore conceived ideas of formation of ore bodies.

The area occupied by this enormous mass of ore is fully 1 mile square, the entire mass being ore which can be profitably worked, with the exception of three small vertical bands of quartzite which contain no ore. All the balance of this great mass is ore, and ore of superior quality to the average of the copper-producing mines of the world. These mines gave employment to 400 men from January until June of this year, and many thousands of tons of rich ores were extracted, many carload lots giving returns of from 60 to 75 per cent copper, while the average of all ore shipped was a fraction over 20 per cent copper. In June the property changed ownership, being purchased by Messrs. Rockefeller, Burrage, and associates for a cash consideration of $1,400,000. A corps of mining, mechanical, electrical, and civil engineers and experts are now upon the ground making plans for the erection of one of the most complete plants ever erected for the extraction of copper. It is safe to say that upon the completion of these works Santa Rita will rank among the greatest copper-mining districts of the world.

These mines are the oldest in the United States, having been worked by the Spaniards from the early part of the present century until the Territory was ceded by Mexico to the United States. Millions of pounds of copper were extracted and the metal shipped, on mules, to the City of Mexico. Two of the old forts, erected by the Spaniards for defense against Indians, are still standing, and the old dumps at the mine cover hundreds of acres, demonstrating the extent of the great excavations below. In later years the mines were worked intermittently by Americans, many of the ventures being failures on account of being harassed by the Indians, one firm losing nearly $250,000 by raids of the redskins. And thus these mines had an eventful though not always a prosperous career, until two years and a half ago when Arthur E. Dawson took charge as general manager of the property for J. Parker Whitney, of Boston. By indefatigable effort and economical management, without a dollar of capital, he put the mines on a paying basis. The dividends from the property continued to grow larger and the mines to attract more and more attention from capitalists until they finally purchased the property at the figures given above, and now it bids fair for Grant County to have at Santa Rita the greatest copper mine in the world.

PINOS ALTOS.

The old Spanish records in the custody of the Mexican Government at the city of Chihuahua tell of the discovery of gold at Pinos Altos by Gen. Pedro Almendaris, one of the early commandantes of the Mexican fortress at Santa Rita, distant 12 miles east, and where were situated the famous Santa Rita copper mines. The first discovery of gold by Americans was made on May 18, 1860, by Messrs. Birch, Shively, and Hicks. The camp was first called Birchville, in honor of Birch, who was the first to find the precious metal. Within six months 700 men were in camp looking for the gold lucre. In 1861 quartz mining was commenced, the Atlantic and Pacific lodes being located. Many other quartz veins were immediately located, the ores being reduced and the gold recovered by grinding and amalgamation in arrastres. From twenty to fifty arrastres were kept in constant operation until 1866, producing in the neighborhood of $300,000. Adding to this the gold produced from the placers, and the total of gold produced in the first five years would amount to over $500,000. Considering the crude facilities for operating the mines and the perpetual dread and uncertainty caused by frequent Indian attacks, it was a remarkably good showing. In 1866 a 15-stamp mill was erected by Virgil Marston. This, the first modern machinery in the camp, was quickly followed by other mills of the same kind, which were kept in constant operation upon the oxidized, free-milling ores from the surface of the veins. As depth upon the veins was attained the sulphureted ores were encountered, which proved a serious obstacle to the amalgamation of the gold by the processes then in vogue.

In 1883 concentration of the sulphurous ores was attempted by Messrs. Place & Johnson, but the process was a failure for lack of experienced operators. In 1884 Peter Wagner made a success of the concentration process upon the ores of the camp, and the same year Messrs. Bell & Stevens purchased and put in successful operation the Place & Johnson concentration plant, which had heretofore been pronounced a failure. From that time until last year the ores have been worked by amalgamation and concentration of the tailings, the concentrated product being shipped to the smelting works.

The several claims upon the Pacific vein which were purchased by the Hearst estate two years ago have been systematically exploited, under the superintendency of B. B. Thayer, an experienced mining engineer. Several shafts have been sunk upon these claims, one of them having attained a depth of nearly 1,000 feet below the upper workings at the apex of the hill. The ore body exposed is probably the most continuous, both vertically and laterally, that has ever been developed in any gold mine. The width of the vein varies from 6 inches to 10 feet, while the gold value will average about an ounce per ton. A pipe line has been built to bring water from the Gebhardt Springs, 8 miles away. A mill of 60 tons capacity is now in course of construction and has an assurance of a long and successful run, as more than sufficient ore to keep the mill steadily employed for five years is now blocked out and ready for extraction. It is probable that the mill capacity will soon be increased, if it be found that the water supply is sufficient. In the meantime a 10-stamp mill is working steadily upon the ore extracted in development work.

The Atlantic and Deep Down mines are being developed by Gillig & Co., of New York City, who purchased the properties from the Treasure Mining Company, a Denver corporation, that worked the property for two years at a good profit.

The Golden Giant, Rathburn, Langston, and other properties have been constant producers of gold bullion for many years and have added their share to make up the millions which the camp has produced.

HANOVER.

This camp is a mineral wonder, both as to variety of ore and extent of ore bodies. Here are found enormous veins of iron from 10 to 50 feet in thickness. From two of these mines the Colorado Fuel and Iron Company are shipping 200 tons per day, and this output will be largely increased on the completion of the railroad to the mines, which will be about October 15, 1899. Large quantities of copper ore are being shipped from the Modoc group, the Humboldt, Hanover, and numerous other mines. Manganese occurs in large quantities, and lead ores have been profitably mined here. Like its close neighbor, Santa Rita, its greatest wealth is in copper, the production of which is increasing at a rapid rate.

CENTRAL.

This district really comprises within its boundaries the mining camps of Santa Rita and Hanover, but the name is more especially applied to designate the locality immediately contiguous or within a few miles of the town of Central. Here are found several lead, silver, and gold mines. The principal mines of the district are the Texas and Grand Central, owned by the Bayard Milling and Smelting

Company, a company of Philadelphia capitalists, represented by H. Niles as resident manager. These mines have been developed to a depth of 500 feet, showing a large vein of ore rich in gold and silver and proving the permanency and value of the veins of the district in depth. A concentration mill upon the mines is being successfully operated.

OTHER MINING CAMPS.

Chloride Flat, 3 miles from Silver City, has produced over $3,000,000 in silver; even at the present depreciated price of silver several of the mines are paying well.

At Alhambra, the Alhambra mine is being worked and very rich silver ore is being extracted.

At Victoria, large bodies of high-grade lead ore have been extracted from the mine which gives its name to the camp. Wolframite, a rare and valuable mineral, is also found here.

At Stein's Pass, Granite Gap, Hachita, and Volcano rich lead and silver mines are being opened and are producing large profits.

At Gold Hill, the Reservation, Standard, Nancy Lee, and other gold mines are producing bullion.

At Paschal, in the Burro Mountains, several copper mines are being profitably worked for the higher grade ores, which are shipped to the smelters, while other very large bodies of lower grade ore are awaiting the advent of capital to erect suitable reduction works upon the ground, when these ores can be mined and copper produced at a very large profit.

The prospects for the immediate future of Grant County could not possibly be brighter. Prosperity reigns throughout the county, no boom nor excitement, but everything on a substantial and paying basis, with still greater prosperity assured from day to day as the resources of the county are developed more and more.

GUADALOUPE COUNTY.

Guadaloupe County, the banner grazing county of the Territory, with hundreds of thousands of acres of land of the very finest for settlement, offers unexcelled opportunities to the home seeker. Almost the whole eastern part of this county, embracing part of the so-called staked plains, is covered with the finest of grama grass. Water is found within a few feet of the surface, and it needs only the master hand of man to create a veritable paradise here.

As a sheep country Guadaloupe County is ahead of them all. The finest improved Merino herds are found here, and the wool produced is without doubt the finest in quality and strength of staple. Next to the sheep industry comes that of cattle, both of which are successfully carried on in this county.

The agricultural crops of Guadaloupe County are alfalfa, fruit, and cereals. Apples and pears here excel in flavor and size, being similar to fruit raised in California.

As yet little efforts have been made to develop irrigation enterprises. In this direction most excellent opportunities are offered, especially at Fort Sumner, where 12,000 acres of land could be irrigated at nominal cost.

Puerto de Luna, the county seat of Guadaloupe County, has a $20,000 court-house, several large stores, good schools, and about 1,500 people, and is the center of a fine stock and agricultural section.

The Pecos River, with its excellent ditch system, furnishes an abundant water supply to this section of great promise.

The climate is mild and the altitude is such (being about 4,000 feet above the level of the sea) that a more desirable locality can not be found anywhere for sheep and stock raising. Sheep raising has been a most important industry here, particularly with the native people. Cattle raising is fast becoming one of the principal industries, and it is meeting with much favor and success.

The mineral lands found in this section embrace gold, silver, copper, coal, and iron. Coal has been found, and is of good quality.

Oats, potatoes, barley, and timothy are chiefly grown, and the ranch houses and homes for live-stock raising are numerous. As a live-stock country this locality is specially adapted to the raising of horses.

But as a pleasure and health resort this locality has become famous. The scenic effects are grand. The country is wild and broken, and much game abounds, including bear and deer, while the streams are literally alive with mountain trout running as high as 5 pounds in weight.

Splendid pine forests cover the mountains and mesas, and the timber industry is a most important and growing one, and in the near future, with some investment of capital, Guadaloupe County will come to the front in the development of her resources.

LINCOLN COUNTY.

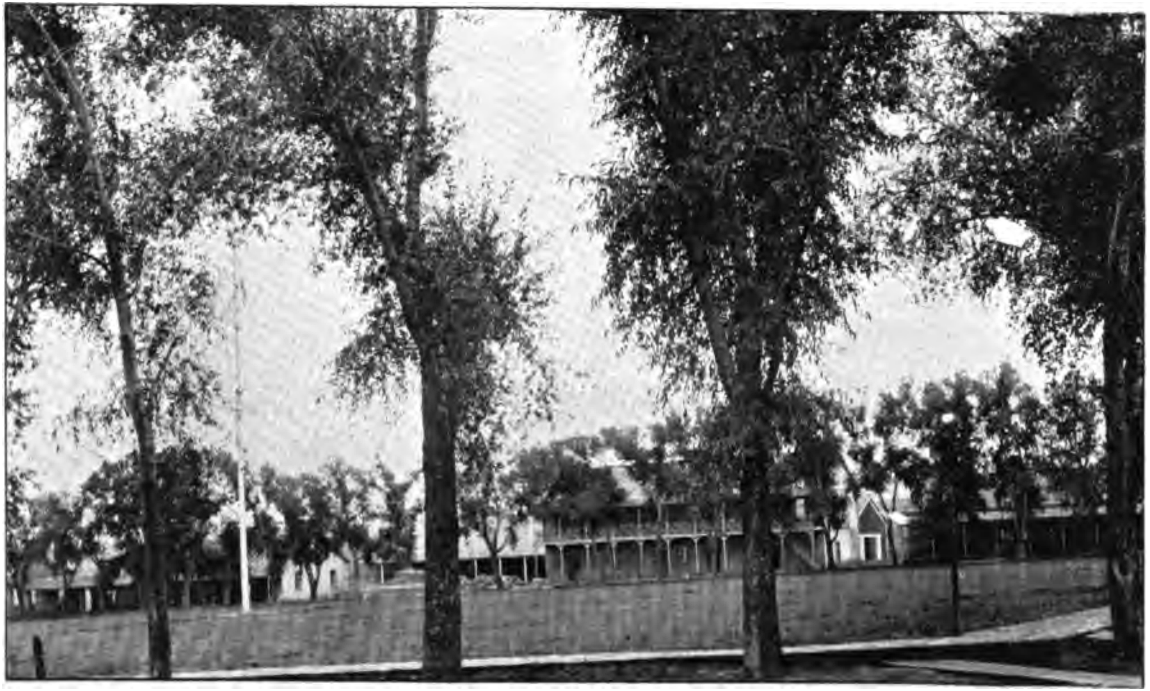
Lincoln County is situate in the southeastern portion of New Mexico, and embraces an area of nearly 5,000 square miles since the last division of it, when the entire southern portion of it was set off to the new county of Otero.

The general surface of Lincoln County is comparatively level, but broken here and there by detached ranges of mountains, rendering it one of the most desirable, as well as picturesque, portions of the Territory of New Mexico.

The climate of this section is an ideal one, being far enough south to avoid any very severe cold weather during the winter, and the altitude, combined with the cooling rains which almost invariably prevail through July and August, render outdoor life peculiarly delightful during the summer and fall, and make it a veritable "promised land" for the home and health seeker.

This county at present has a population of about 9,000 inhabitants and an assessed valuation of $1,608,226, or a fraction over $24.72 per capita. When we take into consideration the fact that it is almost universally conceded that the assessment rolls never represent more than 60 per cent of the actual value of the property, these figures make an extremely favorable showing as to the financial standing of the people in this county.

The principal industry thus far has been the raising of live stock. The ranges in this section are well sheltered by foothills and numerous belts of timber, and the grass is abundant and nutritious, so that stock thrive well the year round, making cattle as well as sheep raising here not only safe but highly profitable. The latest estimate, made just prior to June 1, 1899, places the number of cattle on the ranges of the county at 41,046 and their value at $451,511. This, however, can not be considered a fair showing, as most of the ranches had made their usual spring shipments prior to the time the list was



FORT STANTON MILITARY SANITARIUM.

made out, one firm alone having shipped 28,000 head of cattle in March previous, which was more than one-half the total estimate in June.

Of sheep there were 64,390; goats, 7,787; horses, 2,780; mules, 102. There were also 257 burros and 4,148 hogs in this county listed for taxation. Owing to the long distance from a suitable market but little attention has heretofore been given to agriculture. Only enough grain and vegetables have been raised to supply the local demand. The county now has 10,883 acres of land under cultivation, the larger portion, of course, lying along the watercourses and subject to irrigation, though in certain localities, notably along the eastern foothills of the White Mountains, a large tract has been producing abundant crops for the past five years without any moisture whatever except that retained by the soil from the winter snows and the annual rains. There can be no possible doubt that deep plowing, with subsoiling and thorough cultivation, would cause much of the land in this region, especially that contiguous to the mountain ranges, now classed as "arid," to grow most of the cereals and all kinds of vegetables at a very fair profit. No finer fruit, either in size, quality, or flavor, can be produced in any country than that gathered from the orchards around the White Mountains in Lincoln County. Now that a market has lately been opened up by the coming of the railroad, fruit raising will receive much more attention, and in a few years will form quite an item in the freight shipments to El Paso and other points.

The phenomenal success of the Coe Brothers, on the Rio Ruidosa, A. C. Austen and P. G. Peters on the Rio Bonito, Mrs. S. E. Barber on the Three Rivers, and many others throughout the county, has stimulated other ranch owners in their vicinity to plant extensive orchards with the best varieties of fruit trees adapted to the soil and climate, so that the time is not far distant when the valleys and even waste places will burst forth into a fragrant cloud of peach and apple blossoms.

Lincoln County is, perhaps, more abundantly favored by nature than any other section of equal scope in the Southwest. Aside from its vast areas of grazing and agricultural lands, which are as yet but little more than half utilized on account of an inadequate supply of surface water, its other resources are enormous. From the Gallinas Mountains on the north to the White Mountains on the south, a distance of about 80 miles, there lies a practically inexhaustible mineral belt. There is not a mountain range within its border where the precious metals, in some form, do not crop out on the surface. This fact has been well established for years, but the long distance from any line of railroad communication has prevented the development of these vast resources of wealth, as the transportation of other than gold ore was made impossible.

Only in cases where the deposits have proven to be so enormously rich that they have paid for their own exploiting from the surface down, and a dividend besides, has the work been prosecuted with any kind of system or continuity. It can be safely asserted that no mine in this whole mineral belt, with one or two exceptions, is being worked at the present time where the output of the mine itself has not paid the expense of operating and development, together with the cost of machinery for reducing the ore.

The Old Abe mine at White Oaks is an example in point. This mine is now down to the 1,200-foot level; no water has yet been encountered, neither is there any intense heat perceptible. This is probably the deepest dry mine in the United States. At this great depth the vein is less broken than near the surface and carries about the same amount of free milling ore with a large increase in the value of the refractory ore. It has always paid a handsome profit over the ordinary mining expenses when systematically and economically worked. During the past year the present management has purchased a coal mine, and put in working order for supplying the necessary fuel a 50-ton cyanide plant to work the tailings as they come from the mill, with many other improvements, and the mine has paid for them all with ore taken from development work, as but little sloping has been done.

The North and South Homestake mines in the same district are down to the depth of 1,000 feet and 600 feet, respectively, with a large amount of underground development work, and always paid a handsome dividend when properly managed.

The Lady Godiva, Little Mack, Rip Van Winkle, and many other mines in the White Oaks district, have been exploited sufficiently to show that they are of about the same character as the mines already demonstrated by deep workings.

In the Jicarilla Range, 12 miles northeast of White Oaks, the gulches are full of placer gold, estimated at several million dollars, but as yet are worked only in a crude, spasmodic way, owing to the scarcity of water, which has to be hauled several miles in order to obtain the gold by panning. This when obtained is rather coarse and almost pure. A plan is now on foot to pipe the water from the Capitan Mountains, a distance of 21 miles, in sufficient quantity to wash out this gold by hydraulic process.

In the Gallinas Mountains, still to the north, there are many fine prospects carrying copper carbonates and sulphides; also lead carbonates and galena, carrying as high as 40 per cent lead and 20 per cent silver per ton. This is comparatively virgin ground on account of the long distance from any base of supplies and the expense of shipping ore.

In the central eastern portion of the county is the El Capitan range of mountains almost entirely unprospected, although some very fine ore, carrying both copper and gold, has been located in that region.

The Nogal and White Mountain ranges, in the southern end of the county, contain a veritable network of mineral-bearing leads, much of it low grade, it is true, but in immense bodies, which, after all, are considered the more valuable in the eyes of experienced miners. Among the more productive mines in this Nogal district might be noted the American, where its original locator, Billy Gill, ground out a fortune with the aid of a mule and an arrastra; the Hellen Rae, from which old man Rae carried a gunny sack of ore down to his cabin daily and pounded out enough yellow metal in a mortar to wear a silk hat and a syndicate smile the remainder of his days, and then sold the claim to St. Louis parties for $10,000. The owners have since put in a reduction plant.

The Hopeful, generally called the Parson's mine, where a mountain of low-grade ore lies dormant because the heirs could never agree to work it themselves or fix a price on the property so that its volume of gold may be added to the whole product.

This whole vast mineral belt, which in its entirety contains almost every known mineral, is now open to the world. It never has been thoroughly prospected. The land practically belongs to the General Government, and perfect title can readily be obtained, as there is not a land grant in Lincoln County.

The building of the El Paso Northeastern Railroad into the heart of this region has stimulated all manner of enterprises more than any event in its history, and many fortunes will be made here in the next few years by those who have the courage to venture and the capital to invest.

In addition to the precious metals, there are in the vicinity of White Oaks, which is the natural business center of the county, ledges of black, gray, and white marble over a mile long. Here, as well as at the Salado and in the Jicarilla Mountains, are immense bodies of iron ore running from 50 to 70 per cent. Nature, to more especially endow this portion of the great domain, has underlaid 200 square miles of it with a vein of bituminous coal, the quality of which can not be excelled west of the Mississippi River. Openings have been made in these coal measures at White Oaks, at Salado, and at other points, sufficient to prove their quality and continuity. Inside of two months this county will be supplying El Paso and the Southwest with fuel of a very superior kind at greatly reduced rates. So cheaply can this coal be mined that at White Oaks the very best quality is being delivered to consumers at $2.75 per ton.

In the county there have been forty-three school districts already organized, and there are 1,438 children of school age.

At White Oaks is a school building which was erected at a cost of $10,000, with four rooms furnished. Nogal, Lincoln, and Picacho each have public school buildings suitable for two departments. The other districts are all supplied with school buildings of fair capacity. For the past few years much interest has been taken in educational matters throughout the county, and the per cent of illiteracy is growing rapidly less each year.

Being in direct communication with the outside world, this long isolated region will now receive a great influx of money and capital to aid in developing its unlimited resources and to uncover new mines of wealth.

As to the climate, the General Government settled that when it established a marine hospital at the Old Fort Stanton Military Reservation, near the geographical center of the county, where it proposes to test the agency of mild and pure air, tempered with the greatest amount of ozone, in the treatment of tuberculosis.

SALADO COAL FIELDS, IN LINCOLN COUNTY.

The present terminus of the El Paso and Northeastern Railroad will be Gray, a village in the center of the Salado coal fields, Lincoln County, N. Mex. Here are thousands of acres of coal, connected by a railroad to a region where coal is at a premium—the region surrounding El Paso.

As soon as the railroad became a certainty men were put to work at once in the Salado mines, and many tons of coal are now waiting the welcome whistle of the locomotive to be carried to El Paso, where the market is sure and steady.

The coal is excellent for steaming purposes, and is destined in time to be used most exclusively by the different factories and smelters in Pass City, and also in the northern and interior of the Republic of Mexico.

The railroad having now reached the coal fields, it is expected that within six months from this date more than a thousand miners will be working in the Salado district.

MORA COUNTY.

The county of Mora is bounded on the east by Union County, on the north by Colfax, on the south by San Miguel, and on the west by Rio Arriba and Taos counties. This county has an area of over 2,000 square miles, consisting of well-watered and as fertile and productive agricultural and horticultural, as well-grassed pastoral, as rich mineral, and as densely wooded timber lands as can be found in any other locality in the great Southwest.

A choice of remunerative occupation is offered to either the farmer, gardener, or stockman; or, should the home seeker prefer to prospect for mineral, or be a lumberman, he can find among the mountain ranges of the western portion of the county, on Government land, free and open to all comers, sufficient inducement for that necessary labor which accumulates wealth in bringing to light the hidden treasures of the hills or in felling the giants of the forest.

The eastern portion of this county, all public domain, is entirely devoted to stock raising. The great plains lying between Union County and Red River support numerous herds of sheep, aggregating hundreds of thousands during all the year. This immense stock range is well watered, and, with sufficient shelter afforded by the many brakes and canyons, comes near to being the stockman's ideal of what a summer and winter range should be. The grass is black gramma, well known to be the most nutritious of grasses.

From Red River westward the country is broken by cedar-clad hills and open parks and glades; is dotted with picturesque stock ranches and small farms until the lower valley of the Mora is reached at Cherry Valley, from which point to the head waters of the Mora River large tracts of land are farmed, and all under irrigation systems, yielding heavy crops of alfalfa, the principal forage plant grown. Other crops successfully raised are meadow hay, oats, wheat, corn, and, in fact, all small grains give a greater return per acre in bushels, and many more pounds to the bushel, than any of the famous wheat or corn States.

From Watrous to the western boundary line of Mora County, on all the streams and throughout all the many beautiful valleys, very large amounts of grain and hay are annually harvested. Las Vegas is yet, and has been for decades, the principal market and distributing point for all crops raised in the upper Mora and tributary valleys, as well as the receiving and distributing point for all material timbers used by the Atchison, Topeka and Santa Fe Railway and sent for hundreds of miles north and south over its line.

The town of Mora is the county seat, and is situated in the midst of extensive valleys, thickly populated with prosperous and industrious inhabitants, the visible evidence of whose labor contributes in a marked degree to the prosperity of the community at large, and with the remarkable result that not less than 40,000 wagonloads of products from farm and forest, and of merchandise, agricultural implements, etc., are exported and imported annually.

As yet railroad communication between Mora and the outside world is lacking, but recently there has been incorporated the Las Vegas, Mora and Taos Railway Company, with principal office at Las Vegas, which intends to link those towns named in its title and bring them into close connection by means of a standard-gauge electric railway, thus giving to Mora all the advantages of being practically on a transcontinental line, through Las Vegas, on the Atchison, Topeka and Santa Fe Railway, as a gateway. The early construction of this line is almost an assured fact.

The opportunities for investment in Mora County are unsurpassed in the Rocky Mountain regions. To either the large or small capitalist, the millionaire, or the "man with the hoe" there are presented openings for the safe employment of money which will, in manifold manner, repay all judicious outlays.

With the construction of the proposed railway will immediately follow the installation of immense beet-sugar refineries, canning establishments, flour and oatmeal mills, planing and saw mills, and various other important industries, raw material for which will come from the surrounding country. One item alone, i. e., pease, will furnish to a cannery over 1,000,000 pounds per annum, equal to as many cans as pounds, and of as fine a quality and delicious a flavor as any imported French pease. The Mora pea can be bought for 1 cent per pound, and it requires but little arithmetical effort to figure between the cost and profit on an article at 1 cent per pound for raw material and 25 to 30 cents per can for the merchantable product. Beans in great quantities are also grown in all the valleys of western Mora County, and they will assuredly prove an additional industry to that of canning pease, especially as the New Mexico market is now clamoring for both of them. A very heavy export business can be transacted, and both canned pease and beans will readily sell in all Eastern cities.

The La Cueva Ranch Company has successfully proven the entire suitability of the Mora Valley soil for sugar beets, and a year or two ago planted a small tract, which produced the astonishing yield of 22 tons per acre, which, on analysis made by the chief chemist at the Territorial agricultural station at Mesilla Park, N. Mex., and by the chief chemist of the Agricultural Department at Washington, D. C., showed 19.7 per cent and 19.4 per cent of saccharine matter per ton of beets. The La Cueva Ranch Company has a standing offer to supply the crop off not less than 3,000 acres of beets for a first-class refinery located anywhere in the immediate vicinity of the ranch, which would be two-thirds of the tonnage required by a 100,000-ton plant. The tonnage lacking for such establishment can be easily furnished in close proximity, and an excellent opportunity is hereby opened to large capital to come and invest.

The amount of oats annually raised in the Mora Valley alone often exceeds 10,000,000 pounds, while 2,000,000 pounds of wheat is regarded as only a moderate yield. The following is about as the crops are annually—sometimes more, sometimes a little less:

Wheat	pounds	2,500,000
Oats	do	8,000,000
Corn	do	500,000
Hay	do	2,000,000
Alfalfa	do	1,000,000
Sheep	head	100,000
Wool	pounds	500,000
Pease and beans	do	2,000,000
Lumber	square feet	2,000,000
Piles	linear feet	200,000
Railroad ties		200,000
Cattle	head	2,000
Imports of merchandise, agricultural implements, etc	pounds	4,100,000

But in this connection it is only just and right to state that the area of land actually under the plow is but a mere patch compared to the whole area of the county, which statement is necessary to explain what would otherwise appear an extreme paucity of agricultural products. There are at least 500,000 acres of rich lands lying idle and uncultivated, all of which can be put under irrigation systems in the valleys of the Mora, Rio de la Casa, Sapello, Manuelites, Cebolla. Coyote, Rito, Agua Negra rivers, and several minor streams, all of which rivers and streams carry strong heads of never-failing water.

Fruits of all the hardier varieties grow both wild and in orchards in extravagant profusion; they also offer special inducements for the establishment of preserving or canning works.

In minerals the various sorts in constant demand for smelting purposes are abundant. Some of the finest specimens of copper ore ever brought forth from the treasure vaults of the Rocky Mountains are to be obtained in western Mora County. There is also gold-bearing ore, iron, galena, and other sorts awaiting exploitation and intelligent work of the prospector and miner to show their extent.

Coal of a semianthracite character has recently been discovered in apparently inexhaustible measures, which are of sufficient thickness and of such excellence as to establish their commercial value beyond all peradventure. When railroad transportation has been provided, Mora County coal will become known all over the West as a strong competitor in "black diamonds" with any other portion of the country.

The population of Mora County is not less than 17,000 souls. Its assessed valuation is about $1,200,000, being probably only one-third of the actual value.

The altitude runs from 6,000 feet above sea level to 10,000 feet, or perhaps a little higher on the mountain peaks.

The climate is similar to the rest of the northern part or plateau land of New Mexico, and surpasses that of any other country on the face of the globe for counteracting and curing all sorts of pulmonary complaints.

The scenery in the mountains is acknowledged to be superior to the Swiss Alps by those people who have seen both.

The hunter's paradise and the fisherman's ideal for trout fishing is here to be found; the many mountain streams abound in speckled beauties, while game, both feathered and furred, small and large, roams the hills on all sides.

The home seeker can purchase lands already under cultivation for $20 per acre and upward. Farming pays when such lands will readily and constantly yield 50 bushels, or 3,000 pounds, of wheat per acre, which is now selling on the ground at 1½ cents per pound, and never less than 1 cent, with a surety of no failures in crop on account of irrigation.

Many other farm products are raised in this county, and of late years potatoes have been most successfully grown; so much so as to enter into active competition with both California and with Greeley, Colo., bulbs in the home markets.

Vegetables of almost every known variety are grown throughout all the valleys and on all the farms in Mora County. Cabbages of 40 to 50 pounds in weight, as solid and sound as can be imagined, are common results of the gardener's toil. The soil seems peculiarly well adapted to onions, carrots, parsnips, turnips, radishes, and lettuces, and garden truck of all sorts attains speedy maturity, taking the place of and driving out of local markets all importations of vegetables from better-known parts of the West, on account of the superior flavor of the home-raised article. Celery flourishes in this county; large quantities can be raised for export in addition to meeting local demand.

In natural but as yet undeveloped resources Mora County can produce a great and varied abundance. Excellent clay for brickmaking; red and white sandstone; limestone; products of the forest, white pine, red and white spruce, cedar of sufficient growth for electric, telegraph, and telephone poles, and many other trees of commercial value all grow in great quantity and of remarkable thriftiness.

There is enough timber in western Mora County to build a railroad round the earth; enough white spruce to supply a very extensive paper mill, or several of them, with raw material for years to come. There is coal in endless amount for fuel for manufactories, canneries, beet-sugar refineries, etc., and raw product sufficient to supply their demands and keep them steadily in operation from the very moment they are ready to commence.

Excellent natural wagon roads, kept in good repair, cover the county with a regular network. All means of travel and transportation are now maintained by vehicles only, except where the Atchison, Topeka and Santa Fe Railway cuts across the country from Wagon Mound to Watrous, some 40 miles of line.

There is no county in New Mexico which presents so diversified a field for the safe employment of capital in large or small sums as Mora does. Good management, abundantly aided by fertile soil, permanent water for irrigation, and intelligent farming, will produce almost incredible results. The land requires no artificial fertilizer, as the water used in irrigating attends to renewing the soil every year, or just as often as irrigation is given the lands and the crops.

To first realize and afterwards appreciate what Mora County can show and offer to the world, personal inspection and investigation are absolutely necessary, as its most fruitful portions and choicest locations lie remote from the present railway and are not seen or even heard of outside their immediate environs.

M'KINLEY COUNTY.

The legislature of 1898–99 for the Territory of New Mexico by an act created the county of McKinley out of a part of the county of Bernalillo, which new county of McKinley will embrace all that portion of the county of Bernalillo lying within the following boundaries:

On the north the south boundary line of the county of San Juan; on the east commencing at a point where the south boundary line of the county of San Juan intersects the range line between ranges 8 and 9 west of the New Mexico principal meridian; thence south between ranges 8 and 9 west of the southeast corner of township 14 north, range 9 west; thence along the west boundary line between townships 13 and 14 north, ranges 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, and 21 west, to the intersection of said line with the west boundary line of the Territory of New Mexico; thence north along the said boundary line between the Territories of New Mexico and Arizona to the point of beginning.

Although this new county has been created as above set forth, it will not be fully organized until January, 1901. Gallup will be the county seat. McKinley County is located in a rich coal-producing section of country. In fact, nearly the entire county is underlaid with coal and will undoubtedly in time be one of the richest counties and the most prosperous in the Territory, as it has numerous resources and advantages enough to make it so.

In the town of Gallup, the county seat, there are located the Crescent Mining Company, the Caledonia Mining Company, and a number of other large mining companies, employing hundreds of men. The coal mined is shipped to California, Arizona, and Old Mexico. There are also the Mulholland and Casna Mining Company, and United States Senator Clark owns and operates successfully a large mine about 5 miles west of Gallup. There are a number of other parties operating mines, the details of which will be found by reference to United States Coal Mine Inspector J. W. Fleming's report contained herein.

In addition to the immense and inexhaustible coal beds, there has also been discovered coal oil and deposits of asphalt in this county, which, however, have not as yet been developed to any great extent. This county is traversed by about 80 miles of railroad.

OTERO COUNTY.

Otero County, which was created in February of last year by an act of the thirty-third legislative assembly, has experienced a more remarkable growth than any region in the Territory since the locality came under the domination of the United States Government. The erection of this young empire is directly due to the efforts of C. B. and J. A. Eddy, railroad promoters, who induced Pennsylvania and New York capitalists to push a railway across 100 miles of barren and dust-choked plain to the Sacramento Mountains and tap a region previously devoid of market and destitute of shipping facilities, but prolific of all manner of farm products, fruit, timber, and minerals. The expenditure essential in reclaiming the locality from its primeval solitude aggregated over a million dollars, but the investment is already proving remunerative beyond the anticipations of the capitalists who furnished the money for the work.

The county is 6,912 square miles in dimension and contains 192 townships, or 4,423,680 acres. It is divided into the following classes of land: Land irrigable by artesian or pumped water, 1,228,800 acres; stock range, 2,584,320 acres; White Sands Desert, 138,240 acres. The Mescalero Apache Indian Reservation occupies 465,720 acres, or 738 square miles.

AGRICULTURE.

The high plateau of the Sacramento Mountains covers an area from 60 to 70 miles in length and 15 miles in width, and is a wonderfully productive agricultural country. Farmers are rapidly settling the locality, and they find a ready market in the county for all manner of farm and ranch products. Every ranchman is evidently in prosperous circumstances, for the railway has brought a market to their very doors, and the distance is so far to other markets that they have practically no competition and can command top prices for everything that they raise. The amount of land now under cultivation aggregates 1,500 acres, situated in the following portions of the county: Mescalero Indian Agency, 1,600 acres; Penasco region, 1,800; Fresnal Canyons, 1,300; Three Rivers, 800; Tularosa Canyon, 800; Sacramento River Valley, 600; Tularosa and vicinity, 400; Agua Chiquito, 400; Weed, 400; La Luz Canyon, 350; La Luz and vicinity, 200; Elk Spring Canyon, 200; Silver Spring Canyon, 150. It is estimated that there is fully 100,000 acres of fine farming land in the county that can be utilized for ranch purposes without irrigation. In the mountain region no irrigation is required except for cabbage plants and tender vegetables, which demand water before the spring rains commence. Wells are now being bored for artesian water, and when it is secured over a million acres of land in addition to that already available will be reclaimed for agriculture.

FRUIT GROWING.

The valleys and plains in the foothills and adjacent to the Sacramento Mountains furnish one of the best fruit-growing countries in the United States. There are now 23,500 fruit trees and 24,000 grape vines producing fruit in the county. The fruit trees are located in the following various places: Three Rivers, 5,000 trees; La Luz and vicinity, 8,500; Tularosa, 4,000; mountain country, 6,000. The Tularosa country has 15,000 grapevines; La Luz, 6,000, and Three Rivers, 3,000. Previous to this year there was no way of getting the fruit to market, and each season's crop was a total loss except for the small amounts required for home consumption. From time to time a few of the orchardists tried to dispose of their crops by hauling them over the rough mountain roads to Roswell, Eddy, White Oaks, Nogal, and El Paso, distances varying from 80 to 120 miles, but the cost of transportation and the time required in disposing of the fruit made the experiment unprofitable. With the railway facilities now available it will be possible to dispose of each season's crop without any difficulty, for the market embraces the whole Southwest, and the climate is such that a vast amount of fruit is required. Very few of these now engaged in fruit raising understand horticulture, but the methods employed in California and other great fruit-raising sections will come into general use here when the profits to be made in the business are realized. So far the trees here have been free from scale and destroying insects, and the total demolition of a crop by frost is unknown. There is less loss and risk attached to the fruit business in Otero County than anywhere else in the West. The fruit raised is remarkably large and luscious, and the flavor unexcelled. As an evidence of the remarkable worth of the region as a fruit-growing section, it may be well to call attention to the condition of one orchard at Three Rivers. In P. Coughlan's orchard this year the peach trees are so heavily laden with fruit that the branches of the trees are touching the ground, and in many instances have been broken. The peaches are from 3 to 6 inches in diameter, and it is estimated that this small orchard of less than 3,000 trees contains 200,000 pounds of peaches. They sell for 5 cents per pound on the El Paso market, and the crop, if marketed, would represent to him $10,000. Some of these peaches weigh as much as 19 ounces, and an exhibit at the World's Fair gained for them the premium. Apples from this orchard have been found to weigh 29 ounces. One tree contained 6,000 pounds of fruit. Marked success has attended the efforts of fruit growers in the higher mountain country, and apples do especially well there.

CATTLE GRAZING.

Otero County, with its abundance of water and 4,038 square miles of range, furnishes an ideal spot for the stock grower. There are now owned by residents of the county 39,500 head of cattle, and it is estimated that fully 50,000 head, owned by large companies having home ranches in adjoining counties, feed here. The large cow outfits that formerly occupied the range exclusively have for the most part disappeared, and the stock are now owned by numerous small stockmen, who are in a generally prosperous condition. With the price of stock advancing, the cattle industry of Otero County represents a neat figure in wealth.

SHEEP AND ANGORA GOATS.

The high table-lands and prominent foothills of the Sacramento Mountains furnish excellent pasturage for sheep and goats, and the business is being adopted by a number of newcomers in the county. There are 39,860 sheep in the county, and 12,000 Angora goats. The sheep men figure large profits from the business, and there is promise that it may become an important factor in the industries of the county. The county is such topographically that there is no danger of the sheep and cattle men coming in conflict with each other's interest.

TIMBER RESOURCES.

The timber belt of Otero County is estimated to be 20 by 80 miles in extent, containing the heaviest timber in the region from the Mescalero Indian Agency south to the headwaters of the Sacramento River, including the Toboggan, Weed, and Penasco countries. The Alamogordo Lumber Company is doing an extensive timber business in the mountains, and its operations will furnish timber for two large sawmills that are located in the town of Alamogordo. The force of men working in the woods numbers 135 at present, and it is the intention of the lumber company to double it as soon as possible. The shipments amount to 80,000 feet of timber per day, and experts state that the supply can not be exhausted in 50 years, even though the output be doubled. The extensive operations of the company furnish lumber to the El Paso and Southwestern market at a much less figure than Louisiana and Texas concerns can provide it. From Toboggan, the timber-shipping station of the lumber company, narrow-gauge railways have been run for a distance of 7 miles to the summit for facilitating the timber operations. The canyons are narrow, and hills steep, and the cost of working the timber is reduced to the minimum by the construction of slides from the top of the hills to the railway tracks below. The wages paid in the lumber country range from $2 to $3 per day. The timber averages in size from 18 inches to 2 feet in diameter, and occasionally timber is cut that is too large for the band saws of the mills to handle. One of the largest trees felled measured 6 feet 1 inch in diameter, and made ten 16-foot saw logs. Pine, white spruce, red spruce, and oak are the classes of timber most abundant. The red spruce furnishes the largest timber.

The two sawmills at Alamogordo have each capacities of 100,000 feet of lumber per day. A factory in connection with the mills is planned for the manufacture of sash, doors, blinds, moldings, and everything used in house building. The mills are equipped with the very best machinery, and every particle of the timber is utilized in the work. The slabs are worked into pickets, boxing, lath, wainscoting, etc., and the bark and sawdust are used for fuel in generating power for the mills. The construction and mechanical arrangements of the mills make it possible for them to manufacture lumber as cheaply as can be done elsewhere.

The company is now selling lumber as cheap as it can be produced in New York, Pennsylvania, and other places in the East, and cheaper than in Illinois, Iowa, and Nebraska. The quality of the lumber averages sounder, stronger, and better in every respect than Eastern lumber. The company has an investment of over $500,000 in the lumber business in Otero County.

COAL FIELDS.

The matter which first attracted the attention of the Eastern investors to Otero County and induced them to furnish an outlet by rail for its resources was the coal measures of the Salado basin, located 160 miles from El Paso. After a thorough examination of the Salado, White Oaks, and Tularosa plateau coal fields, it was decided that the best coal available was to be found at Salado. There is a great quantity of coal in the White Oaks and Tularosa sections, but the veins are thin and badly disturbed by volcanic action. In the Salado an exceptionally fine quality of coal is found and the veins are thick and the coal intact. Three seams have been opened, two of which are bituminous and coking, 55 and 62 inches thick, respectively, and a third vein of anthracite coal, 40 inches thick. The Salado basin is from 10 to 15 miles wide and the coal measures underlying it are pronounced by experts to be much more regular than the coal fields of Pennsylvania. It is estimated that there is a sufficient quantity of coal there to supply the Southwest market for at least fifty years. Heretofore, coal and coke have been brought to El Paso from distances ranging from 320 to 550 miles, but the building of the El Paso and Northeastern Railway through Otero County places the Salado field within 160 miles of the distributing point, and the haul is practically down grade all the way. The opening of the coal fields means much more than the mere furnishing of cheap fuel to El Paso, for it will also aid materially in developing the precious metals found in Otero County by furnishing mining operators with fuel at a reasonable rate.

PRECIOUS METALS.

The Jarilla mining district is now the most important mineral field in Otero County. Since the railway reached the locality development work has been carried on extensively and now heavy shipments are made from the Nannie Baird, Lucky, and other properties of lesser importance. The gold, copper, silver, and lead ore shipments from that county are of such magnitude that an Eastern company has seen fit to erect a smelter near the El Paso and Northeastern Railway tracks in El Paso, and they confidently figure on drawing their mineral supply principally from Otero County. Recently a rich placer field, 2 miles square in extent, was opened in the Jarilla Mountains, but the workings so far amount to but little on account of the scarcity of water. A number of the miners who are prospectors in the region, have ordered dry washers, and will attempt to work the field as soon as they arrive. Prospecting and development is continuing steadily in the White Mountain, Three Rivers, and Tularosa districts, and many astonishing finds have been made, but the development is not such at this time that the geological conditions of the regions can be dilated on. The railway company reports a constant increase in the ore-shipping business from the county, and positively expects the road to be one of the heaviest mineral-shipping roads in the Southwest as soon as the properties are more thoroughly developed. The railway company is assisting the development of the Jarilla district by offering a rate of $1 per ton on ores running $10 or less and then a graduate freight scale according to value of the ores.

THE WHITE SANDS.

The White Sands Desert, which occupies the extreme western portion of Otero County, is in reality an immense gypsum bed, which will some day form an important item in the wealth of the county. The sand hills resemble huge banks of snow, and on the west of them is found an old lake bed covering 100 square miles area, the bottom of which is composed of layers of crystallized gypsum, some of the crystals being 8 to 10 inches in length. The lake bed deposit for the most part is fibrous and sectile, like mica. The west winds have evidently blown the crystals about for many years, the friction pulverizing them and forming the huge hills on the east. In some places in the lake bed mounds of gypsum; composed of successive layers, are found 15 feet in height, which demonstrates that a bed of gypsum at least 15 feet in depth has been removed by the winds. The sand hills proper vary in size from small mounds to hills 20 feet high, and miniature mountains in ranges and isolated peaks, set off with valleys and canyons, are features of the scene, which is picturesque indeed. There is neither plant nor animal life in the center of the sands, but along the outskirts vegetation flourishes. The constant shifting of the sands kills and prevents plant life from taking root in the desert proper. Along the borders cottonwood trees are found which measure 8 inches in diameter. The soil is very moist, and it is found especially good for the growth of peppermint, large tracts of which are found growing there wild. An analysis of the sands, made at the agricultural college in Las Cruces, gave the following results:

	Per cent.
Gypsum	0.97
Calcium carbonate (lime)	2.68
Magnesium carbonate	.06
Magnesium sulphate	.12
Potassium sulphate	.07
Sodium carbonate	Trace.
Sodium chloride	Trace.

Experiments made with the sands for fertilizing purposes found it to be especially adapted to that use. The plant-growing qualities of the sands is exceptionally good. The experiments at the agricultural college demonstrated that the application of white sand in considerable quantities improved any soil a great deal. In addition to the uses mentioned above, the sands are valuable for the manufacture of plaster of paris and its various by-products. Sulphuric acid, which is largely used in leaching copper ores, can be manufactured from the sands, and with the advantages of cheap power, in consequence of cheap fuel, the great desert 20 miles west of the town of Alamogordo will some day be utilized in commerce and be found a source of great wealth.

RAILWAY ENTERPRISES.

The railway enterprises begun during the past year in Otero County include the El Paso and Northeastern, which is now 160 miles in length and still in progress of construction; the Alamogordo and Sacramento Mountain Railroad, which is completed from Alamogordo to Toboggan, a distance of 20 miles, and a narrow-gauge timber railway from Toboggan up the various canyons of the Sacramento Mountains—about 9 miles in length. The El Paso and Northeastern Railway was built for the coal business of the Salado Basin alone, but various resources never before thought of have been developed with the building of the road, and now it is enjoying a good freight and passenger business. The Alamogordo and Sacramento Mountain Railway shows some of the most intricate work of broad-gauge railway building in the United States. Maximum grades of 5.2 per cent and 30° curves are features of the road. A splendid agricultural and timber country was opened by this road, and the shipping business already demonstrates that the enterprise was justified. In all probability another railroad from Alamogordo to the White Sands, and from thence to the San Andres mining district, will be built as soon as developments in those regions warrant the move.

THE IRON INDUSTRY.

In at least a dozen places along the line of the El Paso and Northeastern Railway, in Otero County, deposits of superior ore, suitable for the manufacture of Bessemer steel, have been found. Cheap coal and coke will place the iron industry of this county on a plane with other localities, and then New Mexico, Texas, and the whole Southwest will be supplied with the home product. The iron ore has been tested at some of the largest steel works in the United States and is shown to be superior to the Colorado product. When the time arrives for the thorough exploitation of the business, New Mexico will find one of her principal industries located in this county.

SCHOOLS OF THE COUNTY.

Since the organization of the county, two different school superintendents have been appointed, but neither would undertake the work of attending to the enumeration of the children or apportionment of school funds, and the matter will not be attended to until the October meeting of the board of county commissioners. Alamogordo has a private school with an average attendance of 75, and the public schools will be established in less than two months. As an evidence of the increase in the number of children of school age in the past year, the Fresnal district (district No. 15) furnishes a startling example. Last year the enumeration of the children in that district showed 29. This year it is 225. The same ratio of increase will be found in every district that is adjacent to the railroad, and in every farming and fruit section and town. Inasmuch as there is no school superintendent to attend to this matter now, it is impossible to give accurate figures relative to the schools.

LABOR SUPPLY.

The labor supply of the county is low. Men for railroad work, timber work in the wood, lumber men for the sawmill, etc., are scarce, and several crews have been imported during the past year from Pennsylvania, Louisiana, Chicago, and other places.

CLIMATIC.

Climatically, the conditions of Otero County are very similar to those existing in other localities of a like altitude in New Mexico. The United States Government has placed the stamp of its approval on the section as desirable for tuberculosis patients by the establishment of a merchant-marine sanitarium at Fort Stanton, on the northern border of the county. The dryness of the atmosphere in the lower country and the lack of precipitation makes it especially desirable for the treatment of that disease.

ALAMOGORDO.

Alamogordo, the county seat of Otero County, has experienced the most remarkable growth of any city in the Territory. Less than two years ago the town was established, and it has to-day over 2,000 inhabitants, broad streets, an excellent assortment of splendid brick storehouses, well stocked with merchandise; three churches, two large sawmills, costing over $200,000; an electric-light plant, ice factory, a water-works system which cost $50,000, railway hospital, and commercial men's club. The general offices of the El Paso and Northeastern Railway are located here, and the company will also erect a roundhouse and machine shops at an early date. The county has the erection of a court-house in view, and fully 20 fine two-story residence houses, costing from $2,000 to $10,000, adorn the place. It is estimated that over half a million dollars has been spent in improvements in the city during the year.

WEALTH AND POPULATION.

The census rolls show a population of about 3,500, and it is constantly increasing. The El Paso and Northeastern Railway is directly responsible for the increase in population, business, and wealth of the county, for the opening of the region has given employment for almost unlimited capital, and a great amount of labor in the timber and mining regions, and has furnished homes for thousands of farmers, stockmen, and people engaged along commercial trade lines. The live-stock, agricultural, and other industries have been increased wonderfully, and the competency and energy displayed in bringing about these results is worthy of the highest commendation.

TULAROSA.

NEAR THE FOOT OF THE WHITE MOUNTAINS, AN IDEAL PLACE FOR HEALTH-SEEKERS, AND A REGION RICH IN AGRICULTURAL, FRUIT, AND MINERAL RESOURCES FOR THE HOME-SEEKER.

A climate which will effect a cure for pulmonary complaints is the one great desideratum for which persons afflicted in that respect have traveled the whole world over. It is generally conceded that a place having a mild and uniform climate, linked with the pure air of a high mountain altitude, is the place which consumptives should seek, and all of these necessary attributes are to be found in Tularosa, Otero County, N. Mex.

This little town, which is in southern New Mexico, is on latitude about 33° north, is situated at the base of the White Mountains, whose highest peak, about 25 miles distant, rises 12,000 feet high, and the town itself has an altitude of 4,000 feet above the level of the sea. It is supplied with water by the Tularosa Creek, which is a mountain stream whose sources consist of several mountain springs containing iron, magnesia, and sulphur, on the reservation of the Mescalero Indians, flowing for about 20 miles through the canyon dividing the White Mountains and the Sacramento ranges. These mountains are covered with pine, fir, juniper, pinon, and balsam fir, all of which endow the atmosphere with a healing balm beneficial to the lungs. The balsam fir furnishes a resin pleasant to the taste and much used among the mountain dwellers for coughs, sore throats, and similar complaints. The temperature ranges from the freezing point to 94° F. This is the record for eighteen years. The thermometer reaches its highest point about the middle of August, when for about two weeks it reaches 94° at noon and remains there until 3 p. m., when it begins to decline, and at night the breeze sets in from the mountains, which renders a blanket necessary before morning. The large number of old cottonwood trees which line the streets of Tularosa furnish dense shade which makes the warmest days pleasant and agreeable. The real winter weather usually lasts from about the 20th of December until the 10th of January, and then ice can be seen in the irrigating ditches from one-eighth to one-quarter of an inch thick, but never strong enough to bear a boy's weight. Tularosa being completely landlocked against the winds on the north and east by mountain ranges and spurs from the main ranges, never experiences those sudden changes of temperature which are so severe on lung troubles.

New Mexico as a fruit region has already been greatly advertised, and the fruit of all kinds raised proves her high standing for fruit culture. Tularosa does not fall behind any other portion of the Territory in the cultivation of apples, peaches, pears, apricots, nectarines, figs, grapes, and wine making from the "Mission" grapes. Apples measuring from 4 to 6 inches in diameter are raised in Tularosa.

The tourist and hunter will find many attractions in the vicinity of Tularosa. The mountain landscape and wonderful "mirage of the desert" to be often seen in Tularosa Valley, are things worth going far to see. Six hours' ride will take the hunter among the wild turkey, black-tailed deer, and cinnamon bear, and a day's drive in a buggy will take the disciple of Walton to where the speckled trout are greedily awaiting the angler's bait.

A large area of the United States public lands is still vacant in the vicinity of Tularosa. That they are rich and fertile is proven fully by the yield of all the lands under cultivation in this section. But irrigation is necessary. Turn water on the land and it will produce anything grown in the temperate zone and many of the products of the Tropics. The mountain streams furnish water in limited quantity only during the dry season, but enough goes to waste and is lost during the winter months to irrigate a country as large as the New England States if it were only stored in reservoirs, where nature has almost provided them—the mountain canyons. Movements are now on foot to effect that object. The mountain ranges near Tularosa contain large deposits of gold, silver, copper, iron, and coal yet undeveloped.

Tularosa is about 100 miles from El Paso, Tex., situated on the El Paso and Northeastern Railroad. The company is constructing a modern two-story depot, with rooms upstairs for the agent. The road is being rapidly pushed on to the Salado coal fields, in Lincoln County. These fields are extensive and a large force of men are now employed on development work. When the road is completed to this point an era of prosperity will follow all along the line, not only in the development of the coal mines, but also the gold, copper, and other minerals, which abound in the region penetrated by this road. There is also an unlimited amount of timber in this region. To those seeking for health, we say come and breathe the dry mountain air of Tularosa, charged with the life-giving ozone, and warmed by a southern sun. To the tourist and pleasure seeker we say, come and hunt the deer, the bear, the wild turkey, and fish in the mountain waters. To the capitalist, we say, come and examine the greatest opportunities for irrigation enterprises which the country affords. As a mineral and mining country, this section is coming to the front, and mining men are coming here almost daily to examine and report on mining propositions. It will only be a short time until the facilities for shipping ores will be good and claims that have not been worked heretofore will be good properties. And to the homeless one who may desire to avail himself of the United States land laws, we say that in the vicinity of Tularosa lies the largest body of unappropriated public land now left out of the almost boundless public domain, subject both to homestead and desert entries. Now is the time for the landless to take advantage of the opportunity offered.

INDIAN RESERVATION TO BE OPENED.

Directly tributary to the El Paso and Northeastern at Three Rivers and Tularosa is the western portion of the Mescalero Indian Reservation which will soon be thrown open for settlement. The bill to that effect has become a law, and the Indians have taken their lands in severalty, so that all that is required now is the final proceedings to its opening.

The western portion of this reservation is well known to be a rich mineral section, the value of which is greatly increased because of its proximity to the railroad. The rich agricultural country to be thrown open will be a revelation to the many hundreds of people who will seek homes there in a short time. With plenty of water and rich, fertile soil, it is destined to become the great farming area of the Southwest.

In regard to the healthfulness of the section, the Government has set its seal upon the climate by establishing a sanitarium for those of its soldiers engaged in the Navy who are afflicted with pulmonary troubles. This will be the great consumption sanitarium of the world, where, it is thought, will be received all who have become afflicted with the dread disease and who desire to try the benefits of a glorious climate combined with the best medical treatment known.

LUMBER DISTRICTS OF THE SACRAMENTO MOUNTAINS IN OTERO COUNTY.

By means of the Alamogordo and Sacramento Mountain Railroad the magnificent forests of pine trees which exist in these mountains are opened up and made easy of access.

The great extent of these forests is such that, even at the present rate with which lumber is being taken from them, many years must elapse before any appreciable diminution in the supply can be detected.

In the heart of this vast forest, upon the summit of the Sacramento Mountains, is situated the noted resort of Cloudcroft, where 2,000 acres of wild woodland, replete with many surprises in the way of scenery and cozy nooks, is set apart as a park, where hundreds of tired people may find rest during the hot summer months in the cool, balmy air of the mountains.

A good dining hall upon the grounds furnishes meals to those who, while camping out, do not care to endure the heat and other vexations connected with cooking.

The Sacramentos can well be called the sportsman's paradise, as they abound in game, such as turkey, grouse, deer, bear, mountain lion, wild-cat, etc.

RIO ARRIBA COUNTY.

Rio Arriba County lies between the counties of Santa Fe, Taos, San Juan, and Bernalillo, and is bounded by the State of Colorado on the north. Its area is about 4,500,000 acres, of which over 2,000,000 are available for farming and pasturing purposes, agriculture and stock raising being the occupation of seven-tenths of the population, which, according to the last official census, is 11,534, although a recent estimate places it at 19,000.

EDUCATION.

The county of Rio Arriba has as many, if not more, public schools than any other county in the Territory of New Mexico, and all are well conducted and largely attended. There are 42 school districts, with an enrollment of over 1,283 pupils and an average attendance of 878 males and 405 females.

The principal towns of this county are Tierra Amarilla, the county seat, with a population of 2,000, a fine court-house, modern-built jail, three good stores, and a branch of the Denver and Rio Grande Railroad. The other principal towns, which are all thriving, are El Rito, Chama, and Monero, the last being a coal-mining town.

Irrigation is practiced wholly, there being no less than 40,000 acres under ditch.

There are two very extensive and exceedingly fertile valleys, the Rio Grande Valley, and the vast strip of land along the Chama River from its source to its junction with the Rio Grande, 3 miles above Espanola. These are the fruit regions of this county, and the water for irrigation of the fruit lands is furnished by the Rio Grande and Chama rivers.

MINING.

The mining industry is also carried on very extensively in Rio Arriba County. Rich galena ore has been found running $40 in silver and 30 per cent in lead within 8 miles of the Denver and Rio Grande Railroad, which railroad crosses the county of Rio Arriba in its northern part from east to west. Gold has been discovered at Tierra Amarilla in good paying quantities; copper and coal very rich has been found in the neighborhood of Abiquiu covering an area of 16,000 acres. There are now three mining districts, i. e., Good Hope, Eureka Gulch, and the Headstone, within the county, which are considered by mining experts equal in rich ores to the famous Creede district of Colorado.

VALUATIONS.

The value of property is $907,176. There are 1,550 head of cattle, valued at $13,002; 127,869 head of sheep, valued at $103,725.85; 1,082 horses, valued at $14,023, and 67 mules, valued at $1,571.

FRUITS.

Fruit of the very finest flavor is grown in this county; is free from defect and is very abundant.

SAN JUAN COUNTY.

San Juan is the northwest corner county of New Mexico, is about 75 miles square, comprises 3,542,000 acres and lies just south of the reservation, bordering its entire length. Aztec is the permanent county seat of San Juan County, and is situated in the center of the great Animas valley, flanked on either side by the fertile valleys of the San Juan and La Plata rivers. It is in the very heart of the greatest fruit belt and richest producing agricultural district in the whole Southwest. It is the central and general distributing point for the mail routes of San Juan County, and the emporium of trade and business for northwestern New Mexico. Its business and professional lines comprise three large general stores, two hotels, one hardware store, two millinery stores, one newspaper, two blacksmith shops, one livery stable, two saloons, one harness shop, one meat market, two attorneys, two physicians.

Aztec has a fine two-story brick school building and a large, commodious church building (Presbyterian). A substantial wagon bridge across the Animas River near town has recently been completed. A roller flour mill of 50 barrels' capacity daily, equipped with modern machinery and operated by a splendid water power obtained from an irrigating canal, is the latest addition to the enterprises of the town. The Territorial government has established an agricultural experimental station at Aztec and has spent about $7,000 on buildings and grounds, and the last legislature made provision for its future maintenance.

WATER SUPPLY.

San Juan County is traversed by three large rivers, which head in the snow-capped mountains of southwestern Colorado, and furnish a never-failing water supply for irrigation, under which system all successful farming is conducted. These rivers are: The San Juan, about 270 feet wide, with an average fall of 11 feet to the mile, and with a mean flow of 3,200 cubic feet per second of time; the Animas, 150 feet wide, with an average fall of 21 feet to the mile, and a mean flow of 2,000 cubic feet; and the La Plata, about 30 feet wide, with an average fall of 40 feet to the mile, and a mean flow of 250 cubic feet.

RESOURCES.

Nature has indeed done much for San Juan County. With a fine and healthful climate, it has thousands and thousands of acres of rich, level, fertile lands, and an everlasting water supply for all purposes. Large and inexhaustible fields of coal, with veins from 4 to 16 feet thick, crop out at the surface.

What makes San Juan County the finest county in New Mexico and the future great country of the Southwest is—

First. One of the finest climates on earth.

Second. Lands as rich and of as wide an extent as any country can boast,

Third. Its everlasting water supply and the ease with which it can be applied to the lands.

Fourth. The capacity of the soil to raise any kinds of crops in enormous quantities and of the finest qualities.

Fifth. The finest fruit-producing country east of California.

Sixth. The fine stock-grazing land of the higher lands and mesas and the close proximity of mountain ranges for stock in summer and the enormous crops of alfalfa hay that can be produced so cheaply for winter feed.

Seventh. The profitable production of live stock, cattle, horses, sheep, hogs, chickens, bees, etc.

COST OF HOMES.

It is estimated that not one-twentieth of the available tillable lands are yet under irrigation and cultivation. Of the lands already under irrigating ditches and subject to immediate irrigation not one-fifth is in use or cultivation. Thousands of acres of rich, fertile land, with perpetual water right, ready for use and cultivation, lying idle and unused, can be bought as raw lands with water rights at from $10 to $15 and $20 per acre, while improved lands with houses and fencing and productive orchards can be bought at from $20 to $25 and $30 per acre, owing to location and improvements. Thousands of acres of rich, level lands lying on the upper valleys and mesas, yet vacant and subject to entry under the public-land laws, can be irrigated with larger canals and ditches to carry the water.

PRODUCTS.

Entering the Animas Valley, in San Juan County, after leaving the Ute Reservation, the visitor sees well-irrigated ranches, with bearing orchards and alfalfa and grain fields of unsurpassed productiveness. Alfalfa yields three and in some cases even four crops per year, and, in addition, furnishes pasturage throughout the winter. Wheat, oats, barley, rye, potatoes, and sugar beets yield as well as in the other most favored regions. Small fruits of all kinds do well, the grape is much more prolific than in the famous California vineyards, while orchard fruits are of superlative quality. The large, sweet cherries commonly sold throughout the country as California cherries thrive here. The pear here finds its most congenial home. The apricot, almond, nectarine, and peach grow to perfection, and the apple, king of fruits, is beyond compare. Almost every farm on down from the reservation line throughout the county has its orchard. The older orchards produced 15,000,000 pounds of apples in 1898, and the quality of the fruit has established for it a recognized place in the great markets of the country. Pear blight, grape rot, apple scab, and the many other enemies and afflictions of fruit culture in the States of the Union are as yet unknown in this favored section.

The pasturage and water supply of the high mesas in the mountains north are ample for the summer range of vast herds and flocks, which in winter are fed on the valley farms. The sheep and cattle interests are already very extensive and are destined to form the basis of the agricultural wealth of the county.

THE OTHER TOWNS.

This article would be incomplete were not some mention, however brief, made of the many other towns and settlements of the county, possessing, as they do, innumerable attractions and a future pregnant with untold possibilities. Chief among these is Farmington. The fame of Farmington as a great fruit-producing center is widespread. The town is situated at the junction of the three rivers, the San Juan, La Plata, and Animas. It has several hundred inhabitants and is constantly and rapidly growing The oldest orchards in the county are located near here. The soil is rich, the improvements many and substantial, and the people progressive to a degree.

Fruitland, Jewett, and Olio are numbered among the growing towns along the lower San Juan River. They are highly thrifty and prosperous and deserve a visit from the intending settler. Cedar Hill, on the Animas near the State line; Flora Vista, also on the Animas, 7 miles below Aztec; Bloomfield and Largo, on the San Juan, and the La Plata settlement along the productive and progressive valley of the La Plata River, complete the list of San Juan's embryo cities.

A WORD TO THE HOME SEEKER.

When you visit the opening of the reservation you may not get what you want. You will find some of the choice land already allotted. You may find other active, energetic people just ahead of you and the most favorable locations gobbled up by the most fortunate land seekers in the scramble for choice locations, but do not get discouraged. You have come to the Southwest to fully investigate. You want to change locations; you may have weak lungs or throat trouble or be suffering from catarrh or rheumatism; you are perhaps from the slow, go-easy, overcrowded East, and you are wanting a vacation among the strange and diversified scenes of the great West; you want a home of your own with rich soil and plenty of water, and one that will produce anything that grows; and you want a change of climate from the hot, sultry summers of the Eastern and Middle States and from the cold, long winters with their many grievances. Do not get discouraged because you may not get what you want on the reservation. It may not suit you; there may be too much mountain and too little valley. Come right on down across the reservation into San Juan County, N. Mex. Come to Aztec, 38 miles south of Durango, where the Animas River basin widens out into a beautiful broad valley with thousands of acres of the most fertile lands. Remember that it is only 10 miles from Aztec across to the great valley of the San Juan River and only 12 miles across west to the beautiful valley of the La Plata. Remember that while we are only 38 miles south of Durango, we are entirely out of the mountains, among the foothills, and in the broad valleys, and more than 1,000 feet lower in altitude.

There is nothing on the reservation that beats our country. We have better land and more of it. We have more water and it is easier handled to irrigate with. We have all the building stone and all the coal and fuel we need. We have a much lower altitude and a better climate. We have big orchards that have been tried and are found fruitful. We have good schools and churches, good society and good people. We have plenty of cheap lands that can be bought on long time at a low rate of interest, and we have just started a great big empire that has more rich natural resources than any other tract of land of its size in the United States. We want more good, industrious people to help us develop its many rich resources and make homes that mean both independence and fortune in the future in the growth and prosperity of this favored country. Do not get discouraged if others are ahead of you in the reservation. Just beyond is the promised land. Just over the border is the famous San Juan. Just down the river is the great Animas Valley that offers the finest homes in the finest climate for the least money, with the best surroundings of any locality in all the great Rocky Mountain region.

SAN MIGUEL COUNTY.

San Miguel County is larger than the State of Massachusetts and has a population half as large as the State of Wyoming. The topography of the county is made up of mountains in the west part, fertile valleys, and broad plateaus, called mesas, in the central and east. It has every diversity of climate, soil, and scenery, and the great diversity of the staple industries is an ample guaranty of the permanent prosperity of all. Here we have mountain, plain, and valley, the basic conditions best adapted to varied and profitable human energy; mines, cattle, and agriculture, three of the great basic industries of the world all combined, constituting an aggregation of producing industries that underlie and are essential to the successful prosecution of all others.

The Rocky Mountain range, which lies across the west end of the county from north to south, is ribbed with gold, silver, iron, copper, lead, and coal, and yet lacking everywhere of being at all generally exploited.

The great plains which lie between the mountain slopes and the valleys of the streams that cut the county in every section are covered with nutritious grasses and are well supplied with water, and are thus made capable of sustaining vast herds of cattle, sheep, and horses. Many of the valleys are limited, it is true, but practically each of them is of sufficient area to accommodate a neighborhood of farms and capable, with intelligent storage, of supplying all with water for all purposes.

The greatest of all needs of San Miguel County is farmers. Of merchants, lawyers, doctors, politicians, middlemen, statesmen, etc., the supply is fully equal to the present demand; but the farmer, the basis of development and the foundation stone and superstructure of all public prosperity, individual, local, State, and national—the man who tills the soil in rational, intelligent, and successful ways—is the man needed here.

The native population of this county are natural sheep men and cattle men, and devote all their attention to these profitable industries. In many instances they have their homes located in rich valleys capable of producing large and paying crops, but at the same time import their corn and flour from the Middle States. In San Miguel County there are valleys with ample water, if intelligently used, to supply with wheat, oats, corn, and hay a population of 200,000 people, yet for a lack of farmers there are on an average of twelve carloads of flour, three of corn, and five of oats shipped into this county per month the year around. This is a natural result of the conditions of our industries. The cattle and sheep men are not producers of hay, grain, and fruits, nor do they even raise garden truck, but they buy oats by the ton, and they buy bacon, garden products, and fruit. The miners who delve for coal, copper, silver, and gold are many, and they buy imported products at good prices.

Our prices for grain, etc., are Kansas prices with freight added. For instance, if oats can be laid down here from Kansas or Nebraska, or anywhere east, at $1 per 100 pounds, $1 per 100 pounds is the price of our oats. So our farmers get the Eastern price with a very high freigh. rate added, and thus our grain, our garden and dairy products are better paying than they are in the Eastern States, and our market is at home. I am unable to obtain statistics of the amount of poultry and dairy products imported into New Mexico each month or year, but the amount is enormous, and I think it is perfectly safe to say that nine-tenths of the poultry, eggs, and butter used in New Mexico comes into the Territory by express, and this is for the sole reason that we have not in this country the farmers or small ranchmen to supply us with these necessities, a golden opportunity it would seem for thrifty Americans who desire to come West and locate in the finest climate on earth.

San Miguel County is the center of the two great industries in New Mexico, cattle and sheep raising. Of the 20,000,000 pounds of wool produced annually in New Mexico, 4,000,000 pounds are grown and 8,000,000 pounds are marketed in San Miguel County. This county is also the headquarters of a majority of the cattle men of the Territory. In Las Vegas, the county seat of this county, are located three large wool-scouring plants, each with a capacity of 2,500,000 pounds of wool per year. This home demand for wool is the secret of the good market of this product in Las Vegas.

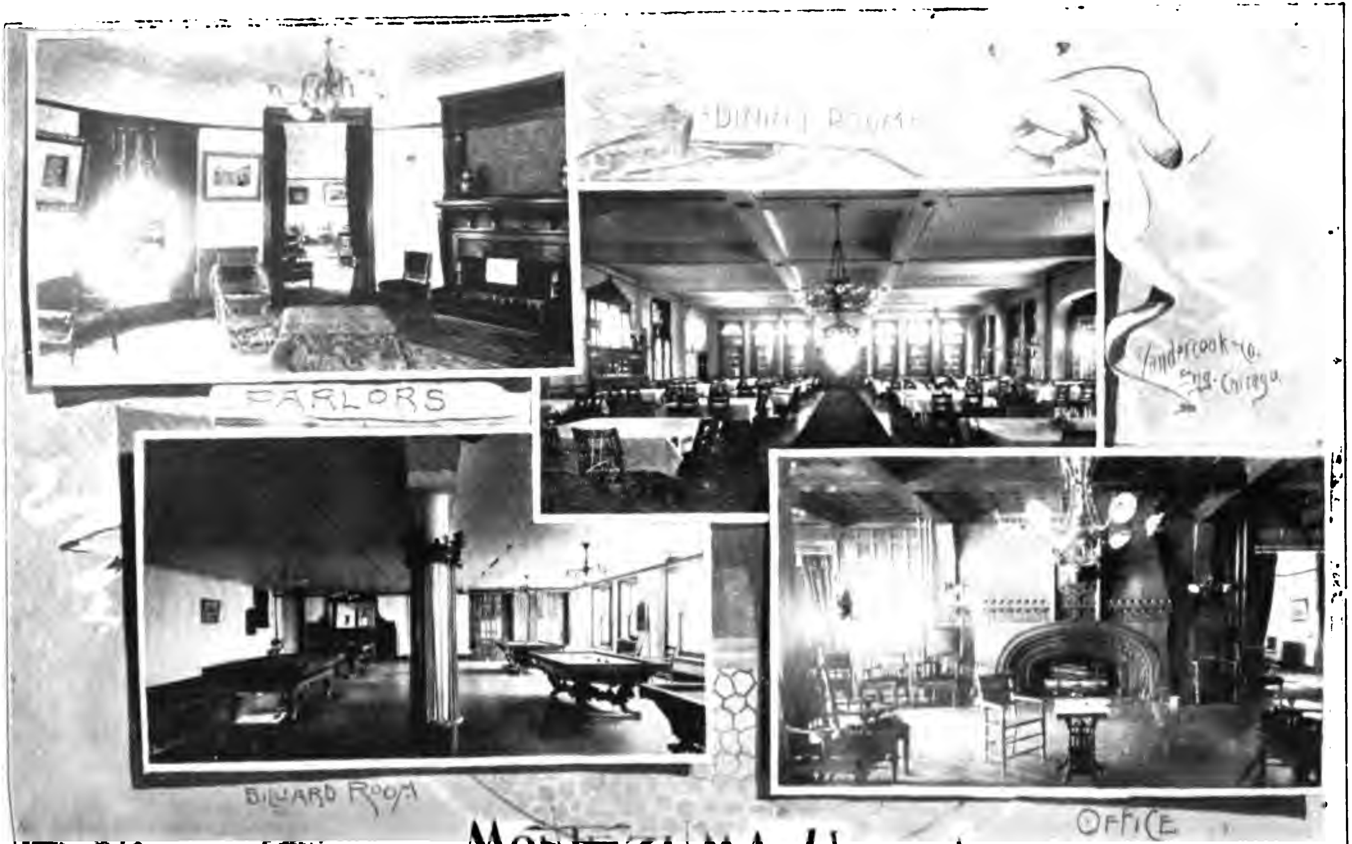
The Atchison, Topeka and Santa Fe Railroad has 100 miles of track in San Miguel County, and the division headquarters is located in Las Vegas, where the monthly pay roll exceeds $30,000. This road has also a branch line running from Las Vegas to the Las Vegas Hot Springs, where upward of $1,000,000 have been spent in hotels, bath house , and other improvements. It is here that the celebrated Montezuma Hotel is located, said to be the finest resort hotel between Chicago and San Francisco.

San Miguel County is known as the empire county of New Mexico. No combination of circumstances has yet been found powerful enough to direct the wholesale trade of the Territory from its natural center—Las Vegas. The largest wholesale houses in the southwest are located here, while having branches at Albuquerque, Socorro, and other points. Trade for Las Vegas comes by rail and wagon. It comes from the counties of Mora, Colfax, Taos, Santa Fe, Chaves, Lincoln, Valencia, and Socorro, there being more freight unloaded in Las Vegas and more loaded out than in any other city in New Mexico. This is certainly a good and true index of the business done.

Las Vegas, the county seat of San Miguel County and the commercial center of the Territory, has a population of 10,000 people, about equally divided between natives and Americans. In the way of public buildings it has a city hall, five public-school buildings, court-house, Masonic temple, opera house, Territorial normal school, Territorial insane asylum (of red and white cut sandstone), an academy, seminary, Jesuit college, convent school, Presbyterian mission school, Methodist manual-training school, Christian Brothers' institute, and a kindergarten. Two schools of music are also added to her educational facilities.

Las Vegas has two daily and five weekly newspapers, three banks, two building and loan associations, three hotels and many boarding houses, nine churches, a number of clubs, and all the leading civic and social societies, a roller flour mill, capacity, 50 barrels a day; a manufactory of mineral and carbonated waters, two wagon and carriage factories, a saddle and harness factory, electric-light plant, three planing mills, two cigar manufactories, and many other enterprises of less importance.

There are eight wholesale houses, whose trade extends throughout the Territory, while this volume of trade and the value of stocks they carry can not be duplicated west of Kansas City and south of Denver.



MONTEZUMA HOTEL

AT LAS VEGAS HOT SPRINGS.

An evidence of the healthy growth of Las Vegas can be had from the fact that not less than fifteen new commercial enterprises have been opened here in the past six months.

Respectfully yours,

W. C. Reid.

Hon. Miguel A. Otero,
Governor of New Mexico, Santa Fe, N. Mex.

CLIMATOTHERAPY AT LAS VEGAS HOT SPRINGS.

A remarkable combination of natural advantages of a health-giving nature exists in and about Las Vegas Hot Springs. Its location in this regard is peculiar. Situated in the northern portion of the county, it lies on the southern slope of the Canadian Valley, the course of whose waters, differing from that of either of the other valleys of the Territory, is directed toward the Mississippi. The main range of the Rockies forms the western boundary of this valley. A limb of the Rockies extends at about right angles east and west along the Colorado and New Mexico boundary line. The Raton Range is a part of this limb, some peaks of which are 8,000 feet in height. This high western and northern barrier protects the valley in question from the severe storms which arise in the great Northwest, and hence materially modifies the climate which exists within this basin. The protection of Las Vegas Hot Springs is also materially enhanced by the fact that it lies at the western entrance of the Gallinas Canyon, the high hills of the latter forming almost a complete circle about it. The range of hills forming this canyon farther west become mountains of considerable magnitude. All are covered with a heavy growth of yellow pine, pinon, and cedar trees, together with minor vegetation. There is no sufficient dust or sand upon these hills and mountains in condition to be disturbed by winds; hence, at Las Vegas Hot Springs sandstorms are unknown. Its distance from any center of population is such that it is undisturbed by the dust of streets. Through the Gallinas Canyon flows a small river by the same name, and in its immediate vicinity, close to the edge of the stream above referred to, within a confined area, the soil is penetrated from an unknown depth by some thirty hot mineral springs. Within the same field whence arise these springs lies an extensive peat bed, an antiseptic decomposition of vegetable matter, invaluable as a medicinal agent.

If one will study the atlas of 1894 by the Weather Bureau department of the Government, compiled from all the reports of the Weather Bureau stations from the organization of each to the end of 1891, he will observe that Las Vegas Hot Springs is in the center of what is known as the "dry belt of the West." This dry belt, with an irregular, constantly varying outline, extends north and south from the northern part of Texas through Mexico and into Colorado. Following the monthly charts in the atlas above referred to, one will observe that in January the storm line is the farthest away from him, extending about midway between longitude 95° and 100°. The general monthly precipitation throughout this area does not, then, exceed an inch. In February the storm line is seen to approach a little farther west; in March still farther. It is the rule that the western edge of the storm line has reached central New Mexico and Las Vegas Hot Springs in June. This storm line begins to recede in September; by October it has passed out of New Mexico on its eastern course, and the precipitation has again been reduced to a monthly average of only 1 inch. It is noticeable, then, that this dry belt has a rainy season, the Raton Range, which is the northern boundary of the Canadian basin, it is greater. The storm line more quickly reaches Colorado and more slowly disappears from it. According to these Government reports, the average annual precipitation at Las Vegas Hot Springs is 12 to 14 inches, most of which falls during the summer months. It is further observed that there are few, if any, habitable portions of the United States having an average annual precipitation of less than above. That there should be some precipitation must be recognized as essential to life and comfort.

A study of the latitude of Las Vegas Hot Springs is interesting in this connection. Its latitude is 35½°, the same that exists in the northern part of Africa, including Morocco, Algeria, and Tunis, and also in the northern part of Arabia, portions of the world known to be extraordinarily dry.

While the location of Las Vegas Hot Springs is so favorable as regards its minimum amount of precipitation, it has not the high temperature that is generally found upon such latitude. This is explainable by its position in regard to the Rockies and its altitude, it being 6,767 feet above sea level. It is generally known that the impression prevails among people who have read of this place, but who have not personally visited the same, that because of its southern position the summers are extremely warm; because of its altitude the winters are severe. Life at the springs convinces one that the opposite is true. The southern position, added to the fact that a spur of the Rockies extends east from the main range along the Colorado border, protects it mainly from the northwestern storms and modifies the temperature of the winter months, so that in truth it is usually mild and delightful. The intensity of summer heat prevalent in southern latitudes does not exist in this location, because of the great altitude. It is thus seen that Las Vegas Hot Springs, together with other portions of New Mexico, has a favorable all year round climate.

The springs, the peat, the freedom from dust and heavy winds, the forests of pine and cedar, the natural scenery, the opportunities for out-of-door life, render this place, in particular, especially favorable for such people as are in quest of health. The medicinal value of the springs has been long recognized; their constituents are generally of the saline element. They vary, however, to a considerable degree, sulphur predominating in one, iron in another, lithia in another, sulphureted hydrogen gas in another; free carbonic-acid gas exists in most of them. They are of unquestionable value in numerous affections peculiarly favorable for their use, either external, internal, or both. The temperature of the hottest is 144° F.; most of the springs range in temperature from 122° to 138°. Combined with the peat in about equal proportions, a union is formed inestimable in certain diseases when prescribed in the form of baths.

All these facilities tend to make of Las Vegas Hot Springs what it is endeavoring to become—a health resort upon an extensive scale. It invites pleasure seekers as well as invalids; those who desire a rest from overwork and those who desire recuperation from some long illness. Its climate must be recognized as most favorable for such as have contracted incipient tuberculosis; those who wish to escape the affections due to a heated term of the lower altitudes; those who wish to escape the rigors of winter; those who wish to avoid suffering from hay fever; its waters invite such as are affected with diseases generally benefited by hot mineral springs. Its sanitation is perfect. Malaria does not exist; sunshine predominates, thus encouraging out-door life and sports of all kinds; therefore to the pleasure seeker as well as to the invalid Las Vegas hot springs offers attractions unsurpassed in the West, and is the property of the Atchison, Topeka and Santa Fe Railroad System, which system has erected numerous buildings at a great cost for the convenience of visitors, and the work of improvement is still progressing. The main building, named the "Montezuma," is a large structure of sandstone, beautifully situated on a commanding eminence overlooking the picturesque Gallinas Canyon, as it opens out toward the rolling meadows, which meadows give the name to the town of Las Vegas, 6 miles distant. From the broad verandas, extending the entire length of the front, east, and west sides of this building, a delightful view is obtained; on the one hand are mountains with their massive shoulders outlined against the skies; in front the little hurrying Gallinas River rushes along filling the air with the distant murmurs of its waters; in another direction the valley is seen to stretch far out to the horizon; little Mexican villages with their adobe houses are scattered on both sides of the stream. In many respects the surrounding country reminds one of Switzerland, and to those fond of tramps and excursions among the mountains it offers an endless variety. Another building just completed is a hospital for the care of those invalids who need quiet and such attention as can not be given in the Montezuma. The bath house and the peat house are prepared for such as require treatment there. Numerous cottages scattered about the plant, along the confines of a large park, are held in readiness for those who desire home life. The Springs Branch of the Santa Fe Railroad affords constant and easy communication with Las Vegas, where it connects with all through trains on the Santa Fe route.

There are other springs and artesian wells near to Las Vegas besides those at the Las Vegas hot springs; the two most celebrated are the Macbeth mineral wells, owned by Peter Roth, and the Onava alterative water springs, owned by Charles Wright; the first, the Macbeth well, is an artesian well of a depth of 338 feet, geologically speaking, in the lower part or bottom of the Jurassic formation and immediately over the Triassic formation, the Triassic forming the bed and bank of this ancient extinct Jurassic sea by curving from under to an anti-incline or uplift at this immediate location. The salts in the water are derived from a bed of seaweeds formed on the coast of this ancient extinct sea by a leaching through the ashes of the decomposed marine plant for ages, extracting therefrom a natural mineral which analysis shows to be a pure sodium or trisodium compound of salts from the algæ and fucus marina, namely, in proportion of sodium chloride, 35 grains; sodium carbonate, 9 grains; sodium sulphate, 1 grain; or 45 grains to each quart of water. These are the principal ingredients or elements of the salts found in the Macbeth mineral water. The water is absolutely free from the other alkalies, such as lime and magnesia, which renders all waters hard and unfit for drinking purposes. It is a most pleasant and palatable mineral water to the taste, and to which the most fastidious do not object; really a beverage after becoming accustomed to it. The trisodium compound is a solvent of mucus in catarrh of the stomach and biliary ducts, also solvents of albumen in the urine and found in Bright's disease of the kidneys; it also corrects the acidity of the blood, of the stomach and urine, such as lactic acid, uric acid, and lithiæma found in dyspeptics remarkably mild and equable considering that the altitude of the valleys varies from 5,500 to 7,500 feet above sea level. Doubtless this circumstance, together with the fertility of the soil, excellence of the water, plenitude of timber, and the many marked manifestations of rich veins and deposits of gold and silver bearing material a few miles south, prompted the intrepid Spanish explorers to locate a permanent colony and mission at Santa Fe, or the City of the Holy Faith of Saint Francis, as early as 1605. The wisdom of this selection has been plentifully demonstrated during the nearly four centuries that have since melted into the past. With the exception of the twelve years following the bloody and transiently successful revolt of the Pueblo Indians in 1680, Santa Fe has ever since been recognized as one of the most important outposts of civilization and commerce in the southwestern world, being continuously the political and military capital of this region under both Spanish and Mexican rule, and, having witnessed the frontier line of the United States carried thousands of miles out into the Pacific Ocean, still maintains its supremacy as the capital city of New Mexico, the county seat of Santa Fe County, and the most delightful residence city in the Rocky Mountains.

MATERIAL RESOURCES.

The assessed valuation of the real and personal property of Santa Fe County for the current year, excluding the large amount exempt from taxation under the law, aggregates $1,768,150.68, of which Santa Fe's share is placed at $338,155.10. There are about 500,000 acres of public land in the county, subject to entry at Government prices, and 557,880 acres more are included in Spanish and Mexican grants, the titles of which are purchasable at low rates and on easy terms. It may be added further that the county affords about 475,000 acres of good grazing land, partly covered with timber, and about 500,000 acres of arable land, 200,000 acres of which could be irrigated. In the absence of exact data, the land actually being cultivated by means of irrigation is conservatively estimated at 25,000 acres, while probably 20,000 acres more are yearly planted to crops subject to the chances of enough rain in the growing season to mature them. Wherever the valley and mesa lands of the county have been brought under the magic influence of systematic irrigation the results have uniformly proved most satisfactory, and naturally this stimulates enterprise annually to enlarge and extend existing irrigating systems and thus gradually increase the number of acres that can be depended upon to yield regular profits.

This is notably true of the Espanola Valley, in the northern part of the county. Plentifully watered by the Rio Grande and its tributaries, the Chama, Santa Clara, and Santa Cruz, this beautiful valley is now most of it under cultivation and evidences of contentment and prosperity are noted on every hand. The acreage of wheat, corn, oats, beans, and kindred crops increases each year. Alfalfa yields three and sometimes four crops per year. Sugar beets, carrying a very high percentage of saccharine matter, can be readily grown there. The orchards of apple, peach, pear, plum, prune, cherry, apricot, and nectarine trees have for several years been large and regular shippers of the choicest fruits of the earth, and their vigorous and thrifty appearance gives cheering and aromatic promise of multiplying profits in the future. All kinds of small fruits, including strawberries, raspberries, blackberries, and currants flourish.

and other table luxuries are raised in great profusion and perfection for the mountain markets of northern New Mexico and southern Colorado, have not only proved to be constant bread winners, but surplus producers. So far as productive qualities are concerned, these remarks may be applied to nearly all of the irrigable and arable lands of the county, particularly the Santa Fe, Tesuque, and Nambe valleys.

The distinguished and lamented Archbishop Lamy introduced the culture of choice fruits, flowers, and vegetables into Santa Fe and elsewhere in New Mexico about fifty years ago. The good man lived long enough to witness the complete success of his experiment and personally taste the rare flavor of its luscious results. It was soon found that all the most desirable varieties of temperate zone fruits, including the largest and finest flavored French cherries, could be grown here in perfection and in quantities only limited by the extent of land and available water supply; that the soil and sunshine of Santa Fe would produce roses rivaling those of France and Italy in beauty and fragrance, and that the conditions were peculiarly favorable to the cultivation of all kinds of edible vegetables. It thus happens that the orchards and gardens in and about the capital city are not only veritable beauty spots, either when blushing with sweet prophecies of better things to come or burdened with matured and mellow fruitage, but provide many families with the comforts of life. Some of these orchards and gardens are irrigated from ancient acequias taken out of the Rio Santa Fe, and others are watered direct from the mains of the local water company.

POSSIBILITIES OF IRRIGATION.

The extent of land so far devoted to the twin arts of agriculture and horticulture is comparatively small, because the natural flow of water in the mountain streams is not sufficient during dry seasons to justify taking out much longer or larger irrigating ditches. These streams carry immense volumes of flood water during the months of February, March, and April, when the snow is melting in the high altitudes and the spring rains are in progress, and again become rushing torrents during the heavy rains of July and August; but, coming from precipitous heights and pouring into expanding valleys and plains below, their invaluable surplus is soon absorbed by the porous soil or drank up by the thirsty air. So, during the months of May and June, when most needed for irrigation purposes, the supply of water is smallest. The remedy is obvious. Wisely located storage reservoirs, like those in southern California or in southwestern New Mexico, capable of holding until needed the flood waters of winter, spring, and midsummer, would render it possible to reclaim and make fruitful thousands of acres of as good land as any now under cultivation in the county.

Careful observations in the canyon show that Santa Fe Creek has a flow of 80 acre-feet per day during the months of February, March, and April; that the rainfall in Santa Fe during July and August varies from 2.50 to 3.50 inches, while in the mountains and canyons composing the watershed of the creek and embracing an area of about 50 miles the rainfall during these two months is not less than 6 inches; that the rainfall in September sometimes amounts to nearly 3 inches; and that after the irrigation season closes, or during the months of November, December, and January, there is always surplus water. In the light of these facts, after making liberal deductions for evaporation and seepage, competent hydraulic engineers reach the conclusion that the storage of the flood or waste waters of the Santa Fe would reclaim and render valuable from 20,000 to 25,000 acres that are now arid and practically worthless.

The Nambe, with numerous natural storage basins along its course, carries three or four times as much water as the Santa Fe, and hence is capable of reclaiming fully 60,000 acres. The Tesuque has about the same, and the Galisteo about half the flow of the Santa Fe.

The surplus waters of the four streams named could be conveniently stored and distributed over the Santa Fe plains as needed, and it will be perceived that, without taking into account the Rio Grande, their combined capacity would be sufficient to reclaim over 100,000 acres in addition to the lands they are now watering. These lands can be secured at Government prices, or on most favorable terms of private owners, and considering that their soil is as fertile and easily tilled and only requires water to become as fruitful as lands in the Espanola Valley that annually yield excellent returns and are held at from $30 to $300 per acre, the thoughtful reader will be able to form an approximate notion of the large direct and indirect benefits that would flow from the proposed system of storage reservoirs. It would not only richly reward the capital and energy invested in constructive work, but would prove a blessing to many deserving men by affording them much coveted opportunities to gain good homes and comfortable incomes in this almost ideal climate. Ten faithfully and intelligently cultivated acres, one half planted to the varieties of fruits that flourish so well at Santa Fe and in the Espanola and Tesuque valleys, and the other half devoted to the culture of table vegetables, would furnish ample occupation and support for a family. The small fruits and vegetables would pay well from the very start, while the trees would begin to bear fruit in three or four years. Celery of superior quality, possessing in a high degree the delicious nutty flavor so much prized by epicures, readily grows here, and might be made a source of large and constant profits. Acres of asparagus, cabbage, cauliflower, onions, oyster plant, and parsnips would reward industry. Experiments prove that sugar beets, grading higher in sugar content than those of California and Nebraska, readily grow here, and will be raised on a large scale as soon as the eyes of capital are opened to the wisdom of erecting factories at Santa Fe for their reduction. Fields of alfalfa, wheat, oats, and corn would pay. Irrigated lands are unfailing crop producers. The rapid and successful development of the Cochiti, south Santa Fe County, and other near-by mining districts, with the certainty that the number of consumers there will soon be multiplied to thousands, guarantees the best possible market for all that these lands could produce. What an inviting field for the establishment of colonies. What tempting and unsurpassed opportunities are thus presented to the many invalids who are seeking and finding fresh health and vigor under the benign influences of the almost perpetual sunshine and the pure, dry, rarified air of a region over which skies of the softest blue tenderly bend, as if bestowing a special blessing.

In consequence of the large shipments of cattle and sheep during the past few years, the extensive areas of fine grazing land are not nearly as well stocked as they should be. According to the books of the assessor, the live stock in the county is classified as follows: Horses, 1,741; cattle, 1,906; sheep, 48,310; goats, 3,793; mules and burros, 510. Clearly the field for stock growers is full of invitation. The experiment of raising goats on a large scale, chiefly for the sake of their pelts, has been undertaken.

MINING—PAST, PRESENT, AND PROSPECTIVE.

In marked contrast with the prolific orchards, fields, meadows, and gardens of the northern valleys and mesas, but even more important and interesting, are the gold, silver, copper, lead, iron, zinc, and turquoise bearing mountains and hills about Cerrillos, Dolores, Golden, and San Pedro, and the great anthracite and bituminous coal measures at Madrid, in the southern part of the county. Unquestionably the gold found in the locality indicated was one of the principal reasons why the Spaniards took such desperate chances to plant and maintain colonies in this county centuries ago. They extensively worked the famous old and new placers at Dolores and Golden two or three hundred years ago, rescuing therefrom several million dollars' worth of gold, mainly by means of the labor of enslaved Pueblo Indians and the rudest possible methods, even obtaining scanty supplies of water by melting snow with heated rocks; and their descendants are still working these inexhaustible deposits of pay gravel by means of "dry washers." Much of the gold is quite coarse. Years ago a nugget was found near Dolores that yielded about $400, and after heavy rains nuggets worth several dollars each are often picked up. Except for the absence of water the stream of gold from these fields would be immense and continuous. Modern skill and enterprise have partly solved the problem by the agency of deep wells and powerful steam pumps, and can be relied upon finally to achieve success in a much larger degree. Artesian-well experiments have so far failed, but confidence is entertained that ultimately an artesian-well flow will be secured. The lodes in the surrounding hills, whence the placer deposits undoubtedly crumbled and washed down, are of inestimable value. Indeed, the range of mountains extending from Dolores south about 8 miles is virtually one vast upheaval of mineralized matter. Cunningham and several other hills of the range are veritable mountains of ore of high enough grade to warrant the belief that the whole mass will be worked when the requisite facilities are introduced.

Some of these lodes were developed to the extent of hundreds of feet many years ago, and there are evidences that much mineral was extracted. It is estimated that gold to the value of $5,000,000 was taken out of the old workings of the Ortiz mine, and the wealth of several of the prominent native families of the Territory can be traced to this source. This mine is now being systematically worked and its free milling output treated at a plant on the ground. In the same vicinity is the Benton mine, from one pocket of which $60,000 worth of ore was mined in a few months some years ago. Adequate reduction works near at hand are needed to make this and other lodes in the Ortiz Mountains steady producers.

At Golden, a few miles south in the same range, are found numerous lodes of gold and silver bearing ore, as well as blanket deposits of lead and iron carbonates that carry both of the precious metals. Several of these lodes are undergoing systematic development, which promises rich results. Tests at small local plants prove that most of the ores will readily yield their values in Huntington mills. Two miles farther south are the great San Pedro copper mines, showing large bodies of copper ore which pay handsomely at the smelter near by. Owing to litigation the mines mentioned were not worked for several years, but are now being operated under competent management, and both mining and reduction facilities are being increased as rapidly as possible.

Large bodies of silver-bearing lead and zinc ore have been opened at Cerrillos, but the low price of silver and other causes have prevented their being worked during recent years. The workings of the Cash Entry mine are very extensive, and it is understood that great bodies of ore are disclosed that would pay well at the present prices of silver and lead. The large bodies of iron, zinc, and lime will, some day, be in demand. A fine, modern smelter of 80-tons capacity occupies a prominent and desirable site at Cerrillos, but has not yet been blown in.

At Turquesa, a few miles north of Cerrillos, are located the celebrated Tiffany turquoise mines, from which thousands of dollars' worth of magnificent gems have been extracted and shipped to New York. Experts pronounce them superior in purity, luster, and enduring sky-blue color to any produced in the world, surpassing the turquoise of Persia in the exact tint desired. Garnets of rare beauty are also found in the county.

Much prospecting is going on in the mountains near the city of Santa Fe, and some fine-looking specimens of copper, iron, and mica have been brought in, but not enough work has been done to determine whether valuable bodies of mineral have been found.

COAL MEASURES AT MADRID.

The coal measures at Madrid, just south of Cerrillos, show three distinct veins from 5 to 10 feet thick, extending for miles, and are pronounced practically inexhaustible. The output of these veins is remarkably varied, including soft, free coking, noncoking bituminous, semianthracite, and anthracite, and in places natural coke is found. The intimate association of bituminous and anthracite veins appearing in alternate strata in the same mine is a phenomenon not observed elsewhere, and one that deeply interests geologists. Purely practical people, however, are contented with the knowledge that the veins contain enough for many generations to come, and that it is nearly all of superior quality. The mines are operated by the Cerrillos Coal Railroad Company, whose tracks reach the workings, give employment to 554 men, and produce annually about 250,000 tons of coal, worth about $450,000. The anthracite mine produced 25,000 tons, worth $100,000, last year. The company also operates a large coke-making plant near the mines, and finds a ready market for its product at the different Territorial smelters and at El Paso. Right here it may be added that the construction of a mammoth electric plant, for the purpose of generating and transmitting power to operate the Albemarle mine and mill in the Cochiti mining district, is now in operation at Madrid, where the vast accumulation of slack affords unlimited quantities of cheap fuel.

SANTA FE.

The historic city of Santa Fe, seat of the government of the Territory of New Mexico and the county of Santa Fe, enjoys the distinction of being the oldest town and the oldest capital on the American founding of Jamestown and also the landing of the Pilgrim Fathers at Plymouth more than twenty years. The thrilling and romantic incidents composing its story, the protracted and bloody struggles with hordes of savage Indians, the capture and pillage by hostile Pueblos in 1680, the general massacre of missionaries and explorers and flight of the governor and a few followers in the night to El Paso, the reserving of some of the handsomest Spanish maidens for wives of favored warriors, the desecration and destruction of the Christian churches and the restoration of the worship of snakes and stone idols, the reconquest by Diego de Vargas twelve years later, the terrible punishment visited upon the rebellious Pueblos, the change from Spanish rule to the rule of the triumphant Republic of Mexico, the capture by the United States forces under General Kearney and the building of Old Fort Marcy in 1846, the stirring scenes accompanying the distribution of the immense traffic of the Santa Fe trail, the wild deeds of desperadoes and the fabulous hazards at cards in the days before the advent of the railroad, afford the material for an epic poem of deep interest.

Here, so carefully preserved that the marks of its three hundred and one years of age are perceptible, is located the noted "Adobe Palace," which was the official residence of the Spanish and Mexican governors, and since the Mexican war has been the headquarters of all the Territorial governors and secretaries appointed by the different Presidents of the United States. Here is situated the oldest house standing on American soil, and near by is the San Miguel church, first built in 1540 and still used as a regular place of worship. Here stand the beautiful and imposing new capitol building, the massive modern cathedral of St. Francis, the large and enduring stone Federal building, the modern penitentiary of the land, San Miguel College, Loretto Convent, St. Katherine and the United States Indian schools, the New Mexico Industrial School for the Deaf, Dumb, and Blind; Presbyterian, Episcopal, and Methodist churches; the large brick Presbyterian mission school, besides many fine modern business blocks and private residences. Here side by side are object lessons whereby the civilization of the seventeenth and eighteenth centuries can be studied in contrast with that of the present day as nowhere else in America.

Environed by protecting hills and thus exempt from heavy winds, surrounded by enchanting natural scenery, beautified by orchards and gardens of flowers, blessed with a climate that is free from extremes of heat and cold, and air that is pure and tonic; supplied with an abundance of pure water for domestic and irrigating purposes from the extensive storage reservoir in the mouth of Santa Fe Canyon; furnished with competing rail, express, and telegraph communication with all outside points; the headquarters of all the Federal and Territorial officials; the meeting place of the legislature, the supreme court, the United States Court of Private Land Claims, the United States and Territorial district courts, and the various Territorial boards; the home of the archbishop of New Mexico, Arizona, and Colorado; putting in a modern sewerage system, and preparing to build large new schoolhouses up to he highest standard of excellence, Santa Fe is naturally forging to the front as a popular residence city.

The waterworks are located about 2 miles up the Rio Santa Fe, cost about $300,000, and consist of a large reservoir or artificial lake secured by means of a semicircular dam across the canyon—600 feet long, 350 feet thick where securely tied to berrock, and 120 feet high—with mains and service pipes extending to every part of the city. A smaller reservoir on the hillside supplies the power required to operate the city's electric-light plant. The present population is about 8,000.

Cerrillos is the principal trading point in the southern, and Espanola in the northern section of the county. As has been shown in previous parts of this review, both have splendid resources, both are flourishing and progressing, like all parts of the county; both are yearly building large business houses and better private residences; both have good schools and several churches, and both are clearly destined to grow in business and population.

Among the substantial improvements at Cerrillos may be mentioned a handsome stone schoolhouse, while an idea of the trade of Espanola may be gained from the fact that one general store there annually sells goods to the amount of about $150,000.

Possessing material resources unrivalled in value and variety, and surrounded by exceptionally favorable natural conditions, the people of Santa Fe County are enjoying a prosperous present and contemplating the future with unbounded confidence.

WOMAN'S BOARD OF TRADE.

The woman's board of trade of Santa Fe has very recently passed its seventh anniversary. The founder of this organization is Mrs. Cora L. Bartlett, wife of the present solicitor-general of the Territory of New Mexico.

The object of the organization is to advance every interest pertaining to the welfare and prosperity of the "oldest city in the United States." This body is regularly incorporated under the laws of the Territory of New Mexico. The standing committees for work are, finance, library, visiting and relief, intelligence, improvement, industrial house, woman's exchange, prevention of cruelty to animals, reception and education, press, and cemetery.

The public plaza is entirely under the direction of the Woman's Board of Trade of this city, and the city of Santa Fe appropriates $200 per year towards its support. A free public library of over 1,200 volumes and a free reading room, with all the leading magazines and papers, are open to the public.

A half, or pauper rate, is granted this board by both the Atchison, Topeka and Santa Fe Railroad and the Denver and Rio Grande Railroad companies, and with the fiscal year ending June 30 there have been 36 half-rate tickets granted. It also owns a pauper burial ground for the benefit of those too poor to purchase lots.

The visiting and relief work is the most important of all its branches, as hundreds are given relief in one way or another every year.

The cemetery committee which has had charge of Fairview since May 1 has expended $166 cash, besides donations of labor, lumber, water, etc.

The board owns 25 shares of stock in the fruit evaporating company, its object being to assist in establishing and promoting any worthy enterprise.

The treasurer's report up to June 30, 1900, shows balance on hand at that date of $243.10; total receipts from all sources, $1,428.64; total expenditures from this amount for all purposes, including $200 by cemetery committee, $1,185.54.

The woman's board of trade prides itself on the businesslike way in which its affairs are conducted, as well as its meetings. Its membership remains about the same (31 members) and unlimited. Every progressive woman in Santa Fe should be a member of this board, granted, of course, that she be willing and is so situated that most of her time can be given to work for the public.

The officers for the year 1900 are as follows: President, Mrs. R. J. Palen; vice-presidents, Mrs. T. P. Gable, Mrs. Creighton, and Mrs. M. J. Warner; recording secretary, Mrs. Anita Chapman; corresponding secretary, Mrs. Charles Bishop; treasurer, Miss Alice Atkinson.

The special work of this year has been the placing of a handsome drinking fountain in the Plaza and a drinking trough at a convenient corner, for animals.

EARLY HISTORY.

In 1541, when Coronado passed through the then unexplored country in search of the fabled Seven Cities of Cibola, he found an Indian pueblo or town already established upon the spot where the city of Santa Fe now stands. It was undoubtedly a place of much importance among the tribes who occupied the country at that time, as Coronado estimated the population at 15,000 souls. The many natural advantages of the location early attracted the attention of the Spanish settlers, and about the year 1600, perhaps sooner, it became a permanent Spanish town and the seat of government for that part of New Spain which was ceded to the United States in 1848.

On August 8, 1680, the Pueblo Indians, under the leadership of Pope, a Taos Indian, revolted against the Spanish and began a war of extermination on the invaders. So successful were they in the uprising that on August 21 of the same year the Spaniards were compelled to evacuate the town and retreat to a point near what is now the city of El Paso, Tex. So soon as the Spanish were gone Santa Fe was partially destroyed by fire. The churches and monastery were burned save the adobe walls, the official documents furnished fuel for a huge bonfire in the plaza, and as far as possible all evidences of the Christian religion were wiped out.

Santa Fe, and in fact the whole land, remained in possession of the Indians until September 13, 1692, when Don Diego de Vargas Zapata Lujan, at the head of 80 mounted Spaniards and 100 friendly Indians, after a battle of eleven hours, defeated the Pueblos and regained possession. After that memorable fight the Spanish maintained their supremacy in New Mexico until August 18, 1846, when Colonel Kearny, at the head of a detachment of United States troops, entered Santa Fe and took possession of it in the name of the United States. It is impossible to here go into details of the history of the city before or after the American occupation, interesting as it is, but in the light of that history no other city in the entire country is so rich in tradition and in historic events as this ancient city of the Spaniards.

PLACES OF INTEREST.

To enumerate all the places of interest in Santa Fe would require entirely too much space for the purposes of this brief sketch, but a few of the most important are:

The Territorial library, containing the ancient Spanish and Mexican archives from 1621 to 1846.

San Miguel Church, built in 1540, partially destroyed in the revolution in 1680, reoccupied in 1692, and completely restored in 1710. This is the oldest church in the United States and contains many relics of the early days.

RESERVOIR OF SANTA FE WATER COMPANY.

The old house, believed to antedate the Spanish occupation.

The Cathedral of San Francisco, behind which is the chancel of the old parish church, with a carved and painted reredos, both curious and interesting, erected by Governor Del Valle and his wife in 1761.

The cathedral museum, containing many Spanish paintings and other objects of interest.

The Territorial historical rooms, full of antiquities of historic interest.

Old Fort Marcy, the commanding situation famous in all the sieges of the city; ruins of the old fort built by Colonel Kearny in 1846.

The garita, on the road to old Fort Marcy, by the west wall of which the leaders of the revolution of 1837 were executed.

The plaza in the center of the town, around which cluster many memories of the conquest of the land by the hardy Spaniards and of the stirring scenes of more recent days. The soldiers' monument is located in the center of this park.

The Church of Our Lady of Guadalupe, with its large and interesting altar piece on canvas, containing six pictures of the appearance of the Virgin to Juan Diego, and other paintings and wood carvings.

Monument to Kit Carson in front of the Federal building.

The Rosario Chapel, erected on the spot where De Vargas made his vow before the surrender of the city in 1692.

The most interesting of all the buildings is, without doubt, the governor's palace, an adobe structure built in 1598 and continuously occupied by the Spanish, Mexican, and American governors for three hundred years. The men who have lived and conducted the affairs of state in the old pile included some of the foremost names of the land, not only of the Territory but of the Eastern States.

To quote from the words of Ex-Governor Prince, author of the most authentic and complete history of New Mexico extant:

> Without disparaging the importance of any of the cherished historical localities of the East, it may be truthfully said that this ancient palace surpasses in historic interest and value any other place or object in the United States. It antedates the settlement of Jamestown by nine years and that of Plymouth by twenty-two, and has stood during the two hundred and ninety-nine years since its erection, not as a cold rock or monument, with no claim upon the interest of humanity except the bare fact of its continued existence, but as the living center of everything of historic importance in the Southwest. Through all that long period, whether under Spanish, Pueblo, Mexican, or American control, it has been the seat of power and authority. Whether the ruler was called viceroy, captain-general, political chief, department commander, or governor, and whether he presided over a kingdom, a province, a department, or a Territory, this has been his official residence.
>
> From here Onate started, in 1599, on his adventurous expedition to the eastern plains; here, seven years later, 800 Indians came from far-off Quivirato to ask aid in their war with the Axtaos; from here, in 1618, Vicente de Salivar set forth to the Moqui country, only to be turned back by rumors of the giants to be encountered; and from here Peñalosa and his brilliant troop started on the 6th of March, 1662, on their marvelous expedition to the Missouri; in one of the strong rooms the commissary-general of the inquisition was imprisoned a few years later by the same Peñalosa; within its walls, fortified as if for a siege, the bravest of the Spaniards were massed in the revolution of 1680; here, on the 19th day of August of that year, was given the order to execute 47 Pueblo prisoners in the plaza which faces the building; here, but a day later, was the sad war council held which determined on the evacuation of the city; here was the scene of the triumph of the Pueblo chieftains as they ordered the destruction of the Spanish archives and the church ornaments in one grand conflagration; here De Vargas, on September 14, 1692, after the eleven hours' combat of the preceding day, gave thanks to the Virgin Mary, to whose aid he attributed his triumphant capture of the city; here, more than a century later, on March 3, 1807, Lieutenant Pike was brought before Governor Alencaster as an invader of Spanish soil; here, in 1822,

the Mexican standard, with its eagle and cactus, was raised in token that New Mexico was no longer a dependency of Spain; from here, on the 6th day of August, 1837, Governor Perez started to subdue the insurrection in the north, only to return two days later and to meet his death on the 9th near Agua Fria; here, on the succeeding day, Jose Gonzales, a Pueblo Indian of Taos, was installed as governor of New Mexico, soon after to be executed by order of Armijo; here, in the principal reception room, on August 12, 1846, Captain Cooke, the American envoy, was received by Governor Armijo and sent back with a message of defiance; and here, five days later, General Kearny took formal possession of the city, and slept, after his long, weary march, on the carpeted earthen floor of the palace.

Coming down to more modern times, it may be added that here Gen. Lew Wallace wrote Ben-Hur, while governor of the Territory, in 1879 and 1880.

SIERRA COUNTY.

There has been a remarkable and gratifying development of the two principal industries of this county during the past two years, and latest reports prove that in both stock-raising and mining interests this progress is in full tide.

Though small in area, Sierra County contains a large proportion of rich pasture lands, and the cattle interests are perhaps the most uniformly prosperous. At present there are upon the various ranges 130,000 head of cattle, 100,000 sheep and goats, and some 16,000 horses. About one-tenth of the cattle is owned by the Las Animas Cattle Company, the remainder being well divided between a great many smaller ones. The profits of the industry remain with and redound to the benefit of the community.

In agriculture there has been little progress. About 6,500 acres are under cultivation out of some 300,000 acres of good, arable land that could be brought under ditch without too great expenditure. The farmers are prosperous and find a ready market for their entire product in the mining camps and at the cattle ranches. The prices they get would excite the envy of a Kansas farmer: Hay, $12 to $16 per ton; grain, 1 to 1½ cents per pound; potatoes, 2 to 2½ cents per pound; apples, 2 to 5 cents per pound. The product of the farms does not near supply the needs of the towns and ranches, and the merchants get their largest supply from Kansas, Colorado, and California.

POPULATION.

The population of the county is between 5,000 and 5,500, and is composed of two-thirds American miners and settlers and the remainder of the native Spanish-American people. There are no Indian residents within 150 miles, and those only a miserable remnant, kept strictly upon an Arizona reservation. The native Mexicans are a peaceable, frugal, and industrious race, and they afford an increasing source of cheap labor in mine and field.

PUBLIC SCHOOLS.

Excellent schools are maintained in seventeen school districts, under the supervision of the county school superintendent. Eight to ten months of the year are devoted to the education of children, and the teachers selected are of the very best character. The school fund has always been cherished, and commodious, substantial, and handsome schoolhouses have been built and are building. In all departments of primary education the school system of Sierra County will bear comparison with communities otherwise far more advanced.

CLIMATE.

It is not too much to say of this land of sunshine that there exists a perpetual summer. There is but just enough of cold in the months of November and December to mark the change from summer to winter, while a fall of snow is rare, and at most does not remain upon the ground more than a few days. In the higher portions of the mountain ranges some snow is, doubtless, preserved during the colder months, and serves to maintain the summer streams. With such a winter temperature it might be expected that a very high thermometer would rule in summer, but such is not the case. From 90° to 95° in the shade is the greatest heat recorded, and from 20 to 30 below freezing point the most severe cold. The altitude—4,000 to 5,000 feet—of the main portions of the region will account for these moderate extremes. In such a climate mining operations are pursued to the greatest possible advantage, and agriculture aided by irrigation has no drawbacks. The devastations of snowslides and blizzards are here unknown, and the same may be said of pneumonia, that scourge of the miners in the North.

THE SANTA FE RAILROAD.

The Atchison, Topeka and Santa Fe Railroad passes through Sierra County, like the river, from north to south. Its distributing points are at Lake Valley for the south and at Engel for the east, from whence well-equipped stage and freight lines penetrate to the different towns and villages of the county. The Santa Fe directory has done much to develop the resources and aid in the growth of this section by granting low rates of transportation on ores to the great smelting points of Colorado, and of Kansas City, Socorro, N. Mex., and El Paso, Tex. For the 740 miles from Lake Valley to Pueblo and Denver the rate is but $5.80 per ton. Some important branches and extensions are contemplated to penetrate to the most remote mining camps of this region, and it is the aim of the directory to foster and sustain, to the extent of its power, the rapid growth of the mining industry. An immediate improvement is the extension of the Lake Valley branch to Hillsboro, the county seat, which will bring the road within 12 miles of the most distant mines in the southern half of the county.

WAGON ROADS.

The roads are of good grade, well-maintained repair, and conduct through the most important districts and reach the more notable mines. Roads from the agricultural lands enable the farmers to sell their produce in the markets of the mining towns, where they obtain prices really remunerative.

LABOR AND WAGES.

Miners earn $3 and $3.50 per day; laborers $1.50 to $2.50. Most of the labor is performed by the native people, and of these there has been, with the growth of the mining industry, and from the neighboring lands of Texas and Mexico, a steady and sufficient immigration. Skilled miners from the North are constantly arriving, and so far no difficulty on the score of help has been experienced.

Sawmills located in the canyon valleys of the Black Range supply the needed lumber for buildings and use in mines, and an ample supply is kept on hand in the lumber yards of the different towns at an average price of 3 cents per foot. Heavy mining timbers for supports are delivered at the mines for from 4 to 8 cents per running foot, according to locality and proximity to timber. Fuel wood is delivered in the towns at $4 per cord. The use of coal is increasing, and with the extension of the railroad to Hillsboro will become the universal fuel for all manufacturing purposes.

MERCANTILE SUPPLIES.

In the principal towns of Hillsboro and Kingston very large stocks of merchandise are carried, and prices will compare favorably with any other known mining districts. Smaller but complete stocks are also carried in the lesser towns of Chloride and Lake Valley, and some convenient stores are to be found where towns have not yet sprung up, but where there is mining, and supplies are needed. The Sierra County Bank at Hillsboro and the Percha Bank at Kingston supply the needed facilities of financial exchange and accommodation.

MILLS AND SMELTERS.

The building of ore-reduction works has kept pace with the production of the mines. Amalgamation and concentration works both are now crowded to their utmost capacity, and an enlargement in this direction must soon be made. Two smelters, or rather matte furnaces, have been erected and operated during the past year, and in this field a large expansion is probable and expected. Water supply for mills has been obtained during the dryest seasons known in the history of New Mexico, and by the aid of some engineering the available supply can be greatly increased.

HILLSBORO.

Hillsboro at the center of the gold district is still the leading town of the county of Sierra. The mines maintain a regular output, and several new ones have been brought into prominence during the past year. Principal among those may be mentioned the Trippe mine owned by a Pennsylvania company. Three shafts have been sunk on this mine, and levels opened to a depth of 300 feet. A mill has been built and is in constant operation, handling 20 tons of ore per day, and turning out bullion and concentrates to the value of $10,000 per month. The mine is also shipping to the smelters a nearly equal value of first-class ore, from $60 to $100 in value per ton. Near the mill and around the post-office store a little town is springing up called Andrews, after Senator Andrews, the president of the company. Of the older mines the Richmond, the Wicks, and the Snake group maintain this position and keep in employment from 100 to 150 men. Other mines are being worked under lease or by their owners, but in the aggregate contributing considerably to the total output of the camp. The building of ore-reduction works and the introduction of improved machinery have kept pace with the production of the mines. Amalgamation and concentration works are now crowded to their utmost capacity, and an enlargement in this direction must soon be made. About $500,000 is the estimated output of this camp for 1899. The Hillsboro ores carry from 3 to 20 per cent of copper, and the great rise of this metal is almost as much to the miners as the rise in beef values has been to the cattlemen. From 60 cents per unit in 1895 to the present $2.85 is a big jump, but it is founded on true scarcity and demand, and therefore likely to be well maintained.

Among the silver camps now recovering from the long depression and again getting to work at mining for what there is in it, Hermosa has been making some great records of happy results and strikes by leasers and small owners. A pocket of ore in that district means thousands of dollars to the finder. The most remarkable thing in silver this year, however, has been at the Lookout mine on Trujillo Creek, the last carload of ore netting the lessees and owners $11,000. With three chutes of this ore opened and actively working, this mine is likely to make a big sensation before long.

Other mines in this county are also producing very rich ore, and there is a general feeling of renewed confidence in silver mining. At the old and once famous camp of Kingston there is also a noticeable revival of mining and increase of production. A new reduction mill built there by a Detroit company is successfully handling large quantities of low-grade ore, and the product is a great addition to the resources of the camp.

Lake Valley is also waking up and doing some mining for rich ore, and for the valuable fluxing ores peculiar to that camp. In the Caballo Mountains copper has been found in paying quantities and under circumstances that indicate permanence. Several good miners are in the district, and much may be expected from this source. Altogether the people of Sierra County are well and profitably occupied, and are as self-supporting and independent a community as can be found anywhere.

Colonies of from ten to twenty families with small capital, say from $1,000 to $2,000 each, could make excellent locations in this county. The land is cheap and the titles are good, and there is a great demand at all times for agricultural products.

Sierra County enjoys the distinction of being out of debt. Its warrants are maintained at par, its resources varied, its people energetic and hopeful, and its outlook for the future bright. It is situated in the south central part of the Territory. Its area is about 2,376 square miles. The county lies principally in the Rio Grande watershed, which river traverses its entire length, taking up in its course hundreds of lesser bodies of water, which will serve as an important factor in making agriculture and horticulture the leading industries of this section.

WARM SPRINGS.

The warm springs, in the valley between Hillsboro and the mines, are provided with a commodious bath house, swimming and private baths, and are a great source of health and pleasure to the miners, who attend in great numbers at least once a week. The water is just comfortably warm, and the baths are in constant use the year round.

At Las Palomas, on the Rio Grande, and at Ojo Caliente, north of Grafton, are extensive hot springs and noted health resorts.

HON. W. H. ANDREWS'S PROPERTY.

The most extensive mining property in the Hillsboro district is that operated by Hon. W. H. Andrews, of Pittsburg, Pa., under the name bonded a large number of claims in the Hillsboro district, and after thoroughly prospecting each one selected those best adapted to his purpose and relinquished the balance. Those retained were the El Oro, Golden Rule, Golden Courier, Bona, Little Stanley, Mignon, Corona, Satisfaction, Trippe, Hillsboro, and Homestake.

After the selection had been made preparations were immediately begun for the construction of a mill. To determine what process was best adapted, several tons of ore were shipped to Denver, Colo., and a thorough test of the various processes for the extraction of gold was made, and the Paletin-Clerici cyanide process was accepted. A plant capable of handling 50 tons per day was constructed on the El Oro claim. The process was eminently satisfactory at first, but the character of the ore changed, and it was found necessary on this account to discard the cyanide process entirely and replace it by ordinary amalgamation and concentration, the Whifley concentrating table being used for the latter operation. The difficulty with the cyanide process lay in the fact that the ore handled was very heavy in iron. After it was crushed to 60 mesh and delivered to the cyanide tanks it was there agitated for a period of about nine hours, the coarse gold settling of its own weight, the fine gold being dissolved and precipitated on quicksilver (which covered a copper plate) by electricity. The agitation acted as a concentrator, and the iron settled over the quicksilver to a depth of several inches, thus preventing a greater extraction than from 45 to 52 per cent, while by amalgamation and concentration an extraction of from 80 to 92 per cent is secured.

Operations have been confined mostly to the Trippe mine. The work on this claim consists of three shafts, which have been sunk to a depth of 300, 120, and 50 feet, respectively. From the 300-foot shaft levels have been run at 50, 150, and 250 feet. From the 120-foot shaft a level has been run to connect with the 150-foot level from the 300-foot shaft, thus insuring an abundant supply of air. In all these openings ore is to be found. What is known as the low-grade ore—that running below $40—is run through the mill and concentrated, the concentrates being shipped to the smelter. Of this character of ore there is a large body, varying in width from 1 to 3 feet. The high-grade ore—that running over $40—is stacked and shipped direct to the smelter. This ore, varying in width from 6 to 18 inches, is found on all the levels. The richest body of ore is found in the 250-foot level. In width it varies from 14 to 18 inches, and is found for a distance of 100 feet (at which time this report is made), and assays $1,630 per ton. Every indication points to the continuation of this body of ore, and should it continue it will make the Trippe the largest gold producer in New Mexico. The ore is hoisted from this mine by a Fairbanks & Morse gasoline hoist on the 300-foot shaft and whims on the other two. These whims will be replaced by gasoline hoists in the near future.

Situated on the El Oro are the company's buildings, which consist of a hotel, store, corral capable of stabling 30 head of horses, the senator's private residence, and the bunk house. The latter has just been completed, and is unique in its arrangements. Every employee is supplied with an iron bedstead, mattress and pillow. There are reading and toilet rooms, the former supplied with the latest periodicals and newspapers, and the latter with towels, soap, etc. Each occupant is assessed 10 cents per week, which defrays the expenses of the janitor and subscriptions to the magazines and newspapers. All the buildings are substantial and comfortable.

The improvements under way and contemplated are a schoolhouse, which may be used on Sundays for religious services, an electric plant, capable of furnishing power for 400 16-candlepower incandescent lights and 10 arc lights, and the enlargement of the corral.

John I. Thomson is general manager for the company and Peter Townsend the mine foreman.

SOCORRO COUNTY.

Socorro County is situated in the central portion of New Mexico, between the thirty-third and thirty-fifth parallels; is bounded on the north by Valencia County; on the south by the counties of Grant, Sierra, Otero, and Donna Ana; on the east by the counties of Lincoln and Otero, and on the west by the Territory of Arizona.

This is at present the largest county in New Mexico, containing approximately 10,000,000 acres of land, consisting of agricultural, grazing, mineral, coal, timber, and saline lands.

Under the present facilities for irrigation about 1,000,000 acres are available for agricultural purposes. Vast areas of excellent land for agricultural purposes are found on the east of the Rio Grande, extending from the eastern slope of the Serros del Pueblito, San Pedro, and Fra Cristoval mountains to the western slope of the Oscura, Burro, and San Andres mountains, covering an area of from 15 to 25 miles in width and 40 to 50 miles in length, the greater part of which might be reclaimed by means of a system of reservoirs for the storage of water. Equally large areas of as fine land as the sun ever shone on is found west of the Magdalena Mountains, in the valley situated between the Datil Mountains on the north and the San Mateo Mountains on the south, a large portion of which might also be reclaimed by means of storage reservoirs.

Estimated population, 19,000, of which approximately two-thirds are native born.

The following are a few of the principal points of importance in the county, to wit: Socorro, San Marcial, Magdalena, San Antonio, Kelly, Mogollon, Cooney, Graham, Alma, Frisco, Gila, Mangus, Luna, Sabinal, Lemitar, San Acacia, Polvadera, La Joya, and Paraje, of which Socorro, commonly known as the "Gem City," is the county seat and headquarters for the fifth judicial district, comprising the counties of Socorro, Lincoln, Chaves, and Eddy. Socorro has a population of 3,000 inhabitants, and is beautifully situated on a slight elevation or tablelands immediately adjacent to the Rio Grande Valley about 2 miles west of the river, at the base of the Socorro Mountains. The city owns and controls its own waterworks, the supply of which is acquired from the Socorro Mountain springs, about a mile above the city, and at an elevation sufficient to furnish any pressure that may be required for any and all purposes. Analysis of the water demonstrates the fact that the same is chemically pure. Principal resources are farming, fruit raising, mining, manufacture of brick, cattle and sheep raising. Climate excellent; is the headquarters for the furnishing of supplies to a large area of country tributary thereto. (The Socorro brickworks have the reputation of producing the best quality of building and fire brick in the West.) Socorro has two banks, three flourishing flouring mills, two weekly newspapers.

SAN MARCIAL.

San Marcial is also situated in the Rio Grande Valley, about 28 miles south of Socorro, and is a stirring, enterprising, up-to-date town of 1,500 inhabitants; division point of the Atchison, Topeka and Santa Fe Railway Company, and where the railway company repair shops and roundhouses are located; also a hotel; is headquarters for the furnishing of supplies to an extensive area of country tributary thereto, including the neighboring towns of Val Verde, Contadero, Old San Marcial, Cantarecio, Paraje, and Rosedale mining district. A modern flouring mill, owned by J. N. Broyles, is in operation day and night; one weekly newspaper, one bank. Principal resources are cattle, sheep, mining, fruit raising, and farming.

MAGDALENA.

Situated about 27 miles from Socorro is Magdalena, which is the terminal of the Magdalena Branch, operated by the Atchison, Topeka and Santa Fe Railway Company, and is one of the principal points in the county for the shipment of cattle and sheep, shipments of cattle for the year ending August 25, 1899, amounting to 24,387 head. Has a population of about 700 inhabitants. Principal resources are mining, smelting of ores, cattle, and sheep. Is headquarters for the furnishing of supplies to towns and ranches tributary thereto for a distance of 300 miles, including Springerville, Ariz. A 100-ton smelter, owned and managed by Capt. A. B. Fitch, is in operation day and night, and from the product of which has been shipped during the year ending August 25, 1899, 1,225,152 pounds of bullion. Amount of ore shipped during the same period, 1,020,000 pounds. At the present time new and important discoveries have been made in the Magdalena mining district, which will very materially increase the product from this place.

SAN ANTONIO.

San Antonio is situated 10 miles south of Socorro, in the Rio Grande Valley, along the main line of the Atchison, Topeka and Santa Fe Railway; has a population of 1,000 inhabitants within a radius of 2 miles; has three large general merchandise stores. Occupation and principal resources are farming, fruit raising, freighting, coal mining, cattle and sheep.

Eight miles east of San Antonio are situated the Carthage coal fields, owned and operated by Hilton & Co., of San Antonio. The coal vein is 5 feet thick, and of a superior quality for steam and coking purposes. It is hauled by means of wagon transportation to the railroad at San Antonio for shipment. This place is also the headquarters for furnishing and forwarding supplies to towns and ranches east of the Rio Grande, including the town of Whiteoaks. The valley lands are very fertile and considered as good as any in the valley, a portion of which from experiments have been found to be especially adapted to the culture of canaigre root and sugar beet. The Bosque del Apache grant is situated 3 miles south of San Antonio, and contains something over 12,000 acres of choice valley land, which at present is not under cultivation, but would furnish an excellent opportunity for capital desiring to engage in the culture of sugar beet and the refining of sugar. Similar opportunities can be found at various places along the Rio Grande Valley; in fact, choice lands suitable for the culture of sugar beet can be found adjacent to any of the above-named towns in the valley. Water supply for irrigation purposes is derived from the Rio Grande through the medium of community irrigation ditches.

MOGOLLON.

This is one of the oldest mining camps in the county, having been discovered in 1879. Has several producing and dividend-paying mines. Population about 750.

FRISCO.

Frisco is situated in the western portion of the county, on the Frisco River. Principle resources are farming and stock raising. Population about 500.

MINES AND MINING DISTRICTS.

The following are a few of the principal mines and mining districts in the county: Cooney district, a portion of the Black Range district, Dry Creek district, Sullivan's Hole district, Cat Mountain district, White Water district, Iron Mountain district, Magdalena district, Socorro mining district, Lemitar district, Kelly mining district, Rosedale mining district, Water Canyon mining district, Ladrones mining district, La Joya mining district, Oscura mining district, Hansonburg mining district, Burro mining district, San Andres mining district.

In the Cooney district are located and in operation several mines, stamp mills, etc., the Cooney mine or Silver Bar having a production of several hundred thousand dollars. Character of ore: Gold, silver, and copper, a portion of which is saved on the plates and the balance by concentration. The Queen, owned by a Galveston company, has considerable development and also a modern 10-stamp mill, amalgamation process.

The Florida group, owned by W. J. Weatherby, has several hundred feet of development; a gold free-milling proposition; pay-ore streak ranging from 18 inches to 3 feet in width; values, $20 and upward. A splendid opportunity for the investment of capital.

The Little Fannie mine, situated about one-half mile from the town of Mogollon, has produced thousands of dollars; is considered one of the best paying mines in the district; has attained a depth of something over 300 feet. Character of ore, milling. Values saved by amalgamation. Pay ore from 5 to 20 feet thick; values, $15 to $40, saving about 75 per cent.

Maud S, situated in the town of Mogollon, has produced $675,000; has a 10-stamp mill. Attained a depth of 375 feet below creek level. Pay-ore streak, 18 inches to 3 feet. Values saved by amalgamation and milling process.

Eberle mine, situated in Mogollon, is one of the best propositions in the camp, has several hundred feet of development, and is reported to have sufficient ore in sight to run a 50-stamp mill for a term of five years. The property has been in litigation for several years, during which time the owner has been constantly developing with a view to erect necessary machinery thereon for the reduction of ores, which will probably be executed in the near future.

Last Chance mine, situated in the Last Chance gulch, one-half mile from the town of Mogollon, has produced $160,000, has a 15-stamp mill, and was recently sold to English capitalists. Is working day and night and reported to bid fairly well toward becoming one of the heaviest producers in the camp. The vein is immense, varying in width from 10 to 30 feet; average value about $10, some of the ore running up into the hundreds.

Deep Down mine, situated on opposite side of the canyon to the Maud S, on the same lead, has a 5-stamp mill, has produced $65,000, and has a bright future.

The Confidence mine, one of the largest and most fully developed properties of the camp, has an estimated output of something over $1,000,000; has a 30-stamp mill run by water power; has attained a depth of over 700 feet. The mill is situated on White Water.

Black Range district. About one-half of this district is situated in Socorro County, the balance in Sierra County. The ores of the Black Range district are high grade, as has been fully demonstrated in the past by shipments heretofore made. A ton sample shipped from the Iffie group gave returns of $211, of which $180 was in gold. An average of 10 samples from the same property, taken by a conservative mining expert, gave returns showing average values of 6⅗ ounces gold and 90 ounces silver.

The Great Republic group is also situated in this district, and upon careful examination demonstrates the fact that it is capable of becoming one of the heavy producers of this region.

The Ivanhoe has also produced some very rich ore.

The Silver Monument, at the head of Chloride Creek, has a production record of something over $100,000. South of Chloride Creek is the United States Treasury mine, showing an ore body of 20 feet at the 100-foot level, averaging $10 per ton in gold.

South of Hagan's Peak are the Colossal and Midnight, the former having produced $70,000. Another one of the heavy producers is the Readjuster, a copper and gold proposition, owned and controlled by Gen. Quinby Vance. Immense deposits of iron ore, from 50 to 500 feet in width and running from 58 to 65 per cent iron, are found in different portions of the district, and many other properties equally meritorious. This district will some day in the near future be the Cripple Creek of New Mexico, the possibilities of which are far greater than the expectations of even the most sanguine friends of the district.

Dry Creek district is situated in western Socorro County, about 15 miles from the town of Mogollon. Rich copper and lead ores have been found in the district, one of the promising prospects being owned by Dan Bechtol; also "tellurium ores," running up into the thousands. The district is in need of development. There is an abundance of running water. There are also some very promising gold prospects owned and controlled by Mr. Bachellor and associates, of Graham, N. Mex. With development the district has a promising future in store.

Sullivan's Hole district is situated in the San Mateo range, and some very promising gold claims have been located and some mining done. The district, however, is in need of development and would furnish a good field for prospectors and capital. Nearest railroad station is Magdalena.

Cat Mountain district is situated about 10 miles from Magdalena, and is systematically one of the largest free-milling gold propositions in New Mexico. The property is equipped with a steam-hoisting plant, and shows 25,000 tons of ore in sight that will mill $10 per ton above the 100-foot level. Below the 100-foot level the ore body is increasing in size and value as depth is attained. There are other promising prospects that might do equally as well with development.

Rosedale mining district is situated about 40 miles west of San Marcial in the San Mateo Mountains. The character of the ore is gold. One of the principal producers is the property operated by the Martin Company, which has paid handsome dividends to the stockholders for some time and is daily becoming more valuable with development. Another promising property is a gold proposition owned and operated by the Hanna Bros. & Bell, of San Marcial. Values in this district seem to increase with depth. The ore is mostly free milling, the tailings being saved by concentration, or might be treated with cyanide.

Iron Mountain district is situated 6 to 10 miles north of Cat Mountain. Nearest railroad station is Magdalena. This district is undeveloped. Has several promising prospects, showing values in gold, silver, and lead.

Magdalena district is situated adjacent to Magdalena. Gold, silver, and lead properties have been successfully worked for several years. Lead carbonates are found in many of the mines in paying quantities. North end of the district is principally gold.

Kelly mining district is situated immediately south of and adjoining the Magdalena district. In the district is situated the town of Kelly, a prosperous mining town. Nearest railroad station is Magdalena, only 3 miles distant. The Kelly district is one of the oldest in the county, and has probably produced more values than any other district in the county. The ores are principally lead carbonates and galena; there are also one or two promising copper properties. One of the principal copper propositions is operated and owned by Walter Cook. The "Graphic" mine is situated in this district, and has been producing ore and paying dividends for the past fifteen years. The property is now being operated under the efficient management of Capt. A. B. Fitch, and is reliably reported as doing better than at any time in its history. Captain Fitch is also operating, in connection with the mine, a hundred smelter. Perhaps the most forcible testimony as to the worth of this property is the fact that during the cloudy days of 1894 and 1895, when lead sold as low as $2.40, the smelter and mine hardly ever lost a shift. The lead carbonates carry some gold and silver, averaging from $2 to $10 per ton.

The "Kelly" mine is situated south of the "Graphic" and has produced thousands of dollars. The mine is at present operated under a lease and ore is being steadily shipped.

"The Juanita" is another good lead property, but is not being worked at the present time on account of being in litigation, is a splendid property, and will be one of the heavy producers as soon as the litigation is settled.

East of Kelly is found the "Hard Scrabble," which has a good production record. South of Kelly are found the "Mary" group, also the "Imperial;" next the "Young America," the last named having shipped considerable ore, the values being found in carbonates running from 30 to 60 per cent lead, and also some silver and gold.

Adjoining the "Graphic" is found a promising lead prospect owned by C. C. Clark, of Kelly. In the immediate vicinity is also found the "Ambrosia," "Yellow Rose of Texas," operated or owned by A. D. Coon, of Socorro, and numerous other prospects which would no doubt be equally meritorious with necessary development.

The Water Canyon mining district is still in its infancy, although prospecting has been carried on for some time. Ores: Gold, silver, lead, uated near Six Mile. The same is being operated under the direction of Richard Sanders, of Philadelphia. This is an enormous vein, in fact, a mountain, of low-grade gold ore. Values saved by concentration. The company have recently erected a large mill at an approximate cost of $50,000 for the purpose of reducing the ores. Values are found in iron sulphides. In Water Canyon, about 4 miles from the Timber Peak, is found the "Buckeye," operated by the Buckeye Gold and Copper Company, nearly all of the stockholders of which are residents of the Territory. The values are principally gold and copper. The ores are sulphides and oxides of copper. In this property water level was encountered 125 feet below the surface. The values of the ore are very materially increasing with depth, the character also changing at water level from a decomposed, honey-combed quartz to a copper sulphide, the ore shute from which shipments are being made so far as uncovered ranging from 2 to 5 feet in thickness. This property has also an immense vein of low-grade ore that would pay to treat on the ground. Formation: Lime and porphyry, hanging-wall lime, foot-wall quartzite. The property is equipped with up-to-date steam hoists, mine pumps, etc., and under the efficient management of the president of the company, Mr. C. T. Brown, and Lee Terry, mine foreman, the property is expected to become in the near future one of the heavy producers of the district.

In Copper Canyon, a few miles distant, is found the Driscoll property. This is a gold proposition and one of the most promising in the district. It has an immense contact vein of low-grade milling ore. Negotiations are in progress with Eastern capitalists for the purchase of the property. This proposition certainly affords an encouraging field for capital seeking investment. There is an abundance of water and an ideal mill site. The property is owned by Dr. Driscoll, of Socorro.

Beyond Dark Canyon in the same district are found a number of paying lead properties, one of the principal mines being owned and operated by Col. W. S. Williams, of Socorro. This mine is known as the "Bell," and at the present time is making regular shipments. The ore is galena, running from 30 to 65 per cent; also carries from $2 to $20 in silver and gold. In the same canyon and district adjacent to the Bell is found another valuable lead property, owned by Mr. Mitchell. The property is being worked under a bond and lease, and has been shipping continually during the past three months; character of ore the same as the Bell. There are numerous other valuable and encouraging prospects that with development will prove to be steady producers. The Water Canyon district is situated 15 miles southwest of Socorro, and is considered by mining men to be one of the best fields for investment in the Territory. As above stated, the district is in its infancy, but all developments so far made have been very satisfactory. The veins seem to be permanent and values universally increase with depth. Abundance of water and timber for mining purposes.

Socorro mining district is situated immediately west and adjacent to Socorro. Character of ore: Gold and silver. This district is also one of the old districts in the county, and has a production record exceeding $1,000,000. The "Torrence," a silver proposition, is not being worked at present, and has large bodies of low-grade silver ore; principal values, silver. Next to the "Torrence" is the "Merritt," owned by a corporation, the principal stockholder of which is A. D.

Coon, of Socorro. This property has an immense body of milling ore (silver) that will average under the present price of silver about $9 per ton. Farther up the mountain is the "Glasson property," a gold proposition, from which some very rich ore has been extracted. This property is considered by mining men to be a very promising proposition. It is owned and worked by Mr. Glasson, of Socorro.

Lemitar district is undeveloped. Ores are copper and lead. Some very good lead carbonate ores have been discovered lately, and considerable work is being done at present. This district is situated about 10 miles north of Socorro.

Ladrones is situated in the Ladrone Mountains, about 25 miles northwest of Socorro. Ore is copper and some silver. The district is undeveloped, but some good copper prospects have been discovered.

Lajoya is comparatively a new district, but active and scientific mining has been going on under the direction of Lon Jenkins, E. A. Levy, and associates during the past year and a half, with very encouraging results. Ores: Gold, lead, and copper. A number of shipments have been made which have paid for developments. The ore is a high grade, and will bear transportation and smelter charges and still leave a profit to the owners. Nearest post-office, Lajoya, N. Mex. The mines are situated on the east side of the Rio Grande, about 5 miles southeast of Lajoya and 2 or 3 miles from the Atchison, Topeka and Santa Fe Railway.

Oscura mining district is situated about 45 miles east of the Rio Grande and the same distance from the railroad. Ores: Copper and lead. Some prospecting has been done and large quantities of low-grade ore have been discovered, but will not stand transportation to the railroad.

Hansonberg district shows copper and some gold and silver. Considerable development has been done in this district, and some very promising copper properties have been partially developed, the principal one of which is owned by A. Hogwall, of San Antonio, N. Mex., and C. Blanchard, of Las Vegas. The ore is very high grade and shipments have been made showing satisfactory returns. Distance from mine to railroad about 35 miles; nearest post-office, San Antonio.

Burro mining district is situated about 50 or 60 miles from the railroad, on the east side of the Rio Grande. Ores principally copper. Some development has been made and very good quality of ore taken out. The greatest drawback is the scarcity of water. It is probable, however, that water might be acquired by boring wells.

San Andres mining district is situated about 30 miles east of Lava Station. Ore: Copper. Considerable work has been done in this district, and at present copper ores are being shipped to El Paso smelter. The veins are good size, and ore running from 13 to 20 per cent is found in paying quantities. Some of the principal properties are owned by Mr. A. T. Harrison, the same being now operated under bond and lease. This is considered one of the richest copper districts in the county.

TIMBER.

The principal timber in the county is situated west of the Rio Grande. Good heavy pine timber is found in various places in the several mountain ranges. The Flagstaff (Ariz.), timber belt extends through western Socorro County. In the Mogollon range perhaps is found the best and largest timber belt in the county, covering an area from 5 to 20 miles in width and 20 to 30 miles in length. We find another belt of the same timber in the Friscos—Elk Mountains, Black Range, and San Mateo ranges—suitable for commercial and building purposes; also in the Magdalena and Gallina ranges, but not so large or of as good quality as some of the aforesaid ranges. One million acres would probably be a conservative estimate of the area of land covered with heavy pine timber suitable for sawmill and commercial purposes in the county. Very little cutting has been done, except the limited quantities used for mining purposes, erection of reduction works, etc., most of the timber being located a considerable distance from the railroad, and will not stand wagon transportation.

COAL.

Coal is found in the western portion of the county, which is supposed to be the Gallup coal belt. On account of no railroad facilities the coal is not being worked. The veins are from 6 to 7 feet thick. Coal is also found within 15 miles of the Magdalena. The Carthage coal fields are situated east of the Rio Grande, mention of which has been made heretofore.

SALINE LANDS.

Near the western border of the county are situated some salt lakes with an inexhaustible supply of a very good quality of salt, the product of which is being used by the mills at Mogollons, Graham, and Cooney. Some salt is also peddled around and used for domestic purposes. There are also some salt beds near the San Andres mountains, but not as good quality as the first-mentioned salt. Distance from railroad about 175 miles.

VALUATION.

According to tax rolls, which generally show about one-third the actual valuation, the property of the county is valued at $4,501,588; the bonded indebtedness approximately is $180,000.

CATTLE AND SHEEP.

The estimated number of sheep in the county is 200,000; number of cattle, 100,000 head; also several thousand head of horses.

RAILROADS.

The Atchison, Topeka and Santa Fe Railway Company owns and operates 107.76 miles of main-line track and 19.11 miles of side track; also division point and repair shop, round houses, etc., at San Marcial.

The county, generally speaking, is in a prosperous condition, caused by the rise in values of the products of the county, especially in cattle, sheep, wool, lead, and copper, etc.

THE SOCORRO FIRE-CLAY COMPANY.

The Socorro Fire-Clay Company is one of the best known corporations in the Territory and stands in the first rank of New Mexico industries. It has been gradually increased in capacity and improved in the quality of the articles manufactured, until it stands now as the best, if not the largest, fire-clay works in the Southwest. When running full capacity it gives employment to 35 men and ships 150,000 brick per month. It has two late-improved brick kilns with a down draft, having a capacity of 50,000 and 60,000 brick, respectively.

The fire-clay brick for smelter furnaces is made by hand into all shapes and sizes and of two different grades. They are really fine, and are growing in popularity with the different smelters throughout the country. Their building brick is made in three colors, buff, white, and red, and has been used extensively in the building up of Albuquerque and El Paso.

A very careful analysis of the clays surrounding Socorro has been made, and no less than 350 different kinds, suitable for making brick, pottery, tiling, sewer pipes, crucibles, scorifiers, mufflers, and almost everything requiring a fine grade of fire or brick clay.

This growing and important institution, like many others in the Territory, has succeeded only by good management and strict attention to business, and its success is now established beyond all doubt.

TAOS COUNTY.

The agricultural, mineral, and other resources of Taos County are of such a diversified character it will be impossible for me to give more than a brief outline of their nature and importance in the space assigned me.

Taos County might aptly be termed a paradox in civilization. It is the oldest and newest portion of the United States. Here, according to the traditions of our Pueblo Indians, were homes and farms five hundred years ago. Before Columbus discovered this country a portion of the Taos Valley was under cultivation, and before the *Mayflower* anchored off Plymouth Rock houses of adobe were clustered about the mouth of the Pueblo Canyon that sheltered the forefathers of some of the present residents of the Taos Valley. The houses of that period were replaced by the present "Pyramids of Taos," which, unlike those of Egypt, were built for homes for the living and not for the dead. The Pueblo Indians, without doubt, were the first home builders and farmers in America that still exist to emphasize the claim of their fathers to that distinction. Notwithstanding the fact that this is the oldest farming community in the United States, there are thousands of acres in this valley of as fine land as the sun ever shone on, that no doubt has the same growth of sage brush that covered it when the Pilgram Fathers landed on this continent. In many places the primitive methods prevail in the planting and harvesting that were common a thousand years ago, notably the wooden plow, the sickle, and the thrashing floor; yet, with all that, the most beautiful crops are the rule.

The mineral resources furnish a parallel to those of agriculture. The first authentic record of the production of gold, in what is now the territory of the United States, was the production of gold from the placers in the Taos Valley, nearly two hundred years ago, when this country was dominated by the Spanish. The records of large shipments of gold to the City of Mexico are in existence to-day, and the ore-placer washings, extending for miles along the Rio Lucero, may be seen to-day. Ruins of Old Arastas that were used, perhaps, centuries ago for the extraction of the precious metals can be found to-day in the mountains; yet, without doubt, Taos County has more square miles of mineral territory that remains untouched by the prospector's pick than any county in the great mineral belt of the West. Surely it is a paradox. Progress in agriculture is noted during the past year. Improved machinery and improved methods are being introduced by the more progressive farmers. The reaper is are to be seen where the cart and wagon were in use before.

Notwithstanding the excessive drought this season, many fields of wheat will average 40 bushels to the acre, and there is the greatest abundance of agricultural products.

No finer fruit is grown anywhere than here in the Taos Valley. The orchards have come to stay, as failures of a fruit crop are rare indeed, and in some localities entirely unknown.

The greatest difficulty that the farmer in the Taos Valley has to encounter is the market for his surplus. Before the advent of railroads in the western country this valley was the granary of the southwest, and a portion of Old Mexico drew its supplies from here, but in recent years he has been compelled to depend upon a local market that was limited, and this curtailed production. However, the local market is being stimulated by the development of the mines in the adjacent mountain ranges, and another ray of hope from the prospects of a railroad in the near future is stirring the energies of the farmer. A railroad that will furnish a southern outlet, thus reaching the legitimate market for the flour and grain, will make this valley second to none in point of productiveness. The money for this enterprise is already assured, if the details of connection and right of way can be satisfactorily arranged. It is sincerely hoped that before the end of the next year the whistle of the locomotive will be heard in this valley and a new era of prosperity will have begun. With the coming of a railroad, new industries will be developed; this valley will become the feeding ground of northern New Mexico. The thousands of sheep and cattle now shipped to Colorado feeding points will be fattened here. The modern flouring mills will take the place of the old water mills, and reduction works will utilize the great veins of low-grade ores that are now practically valueless on account of the lack of transportation.

MINING INDUSTRY.

Considering the lack of capital, rapid strides are being made in the development of the mineral resources of this county. During the present season one new mill has been placed in operation, one is nearing completion, and the third is contracted for. These will have a combined capacity of over 100 tons of ore daily. In addition to that there are three new shipping mines which have been opened, and more would be listed as producers if capital would furnish local treatment for the ores. Millions of tons of low-grade ores are already exposed by recent development work and scores of low-grade veins remain to be opened. What a magnificent field for genius and capital. Genius to devise and capital to construct the plants for the profitable extraction of the precious metals from nature's treasure vaults in the Taos Mountains. However, capital is no longer ignorant of our great mineral resources, as more Eastern money has been invested in the mines of this county during the past year than in all previous history, but the field is practically unlimited, as this county contains over 900 square miles of known mineral territory. It has the advantage of good roads, timber, and water, and is lacking only in transportation. With the present rate of development Taos County in the near future will be second to none in the production of precious metals. This valley with its 300 square miles of the finest agricultural and fruit land, at an altitude of 7,000 feet, protected on three sides by high mountain ranges, and watered by seven rivers, with a climate that is unsurpassed, is destined to become the home of 100,000 people. Nature has given it the soil, the sunshine, the scenery, the pure air, and sparkling water; it remains but for man to improve, beautify, and adorn nature's work for this valley to become what the Indian legend claimed for it in the past, "The Paradise of America."

UNION COUNTY.

The most northeastern county of the Territory is Union, which was created in 1893. It is 123 miles long by 55 miles wide from east to west. It is mostly prairie land, but in the northern portion is a branch of the Raton Mountains. The land is chiefly used for grazing purposes, but along the many streams considerable farming is done, the soil being well adapted to the raising of nearly all the small grains and vegetables.

ALTITUDE AND CLIMATE.

The altitude is about 5,000 feet, which is an excellent average for all persons having pulmonary trouble combined with a weak nervous system, since the climate in this county is equal to almost any portion of the Territory for all pulmonary affections. The air is dry and crisp, is neither too hot in summer nor too cold in winter even for the chronic invalid.

TOWNS AND VILLAGES.

Clayton, the county seat, is the largest town in the county, and is situated on the Colorado and Southern Railway (formerly known as the Union Pacific, Denver and Gulf), in the northern half of the county, and about 10 miles west of the Texas line. The population of this town is between 700 and 1,000. It has an excellent water system and electric light plant, modern court-house costing $20,000, and fine public school building costing its progressive taxpayers $10,000, also a modern hotel, costing $20,000 when finally completed. The school census of this town shows 350 children of school age.

Folsom is situated in the northwest portion of the county, on same line of railway, is the second railroad town of importance in the county, and contains nearly as many people as Clayton. Formerly the United States land office was located here, but was removed to Clayton. Folsom has an altitude of over 6,000 feet and nestles near the mountains, surrounded by springs whose waters contain valuable medicinal qualities, and this town is becoming quite a health resort for many people from Texas and other States who come here during the summer season. Folsom has a fine public school building, built at a cost of $7,000; two very good hotels, and many stores and business houses. Folsom, like Clayton, has a large trade from the surrounding country, extending as far as 150 miles.

Other towns having post-offices, but off of the lines of railroad, are Veda, Capulin, Gallegos, Baca, Genova, Tequesquite, Albert, and many others of minor importance.

CATTLE.

Union County has 60,000 head of cattle within its borders. Many, if not the large majority, are well-graded cattle of the Hereford, Jersey, horthorn, and other fine breeds.

SHEEP.

Three-quarters of a million sheep are now grazed in this county, many being Merinos and other well-known and valuable breeds. Scab is unknown among the sheep men here, and but few of these animals are lost here during the winter storms. The price of wool, sheep, and cattle having rapidly enhanced within a year, and these constituting the principal capital of the citizens of this county, the wealth of the county has kept the same pace.

SCHOOLS.

In all the school districts of the county the terms run from five to nine months, and every child within the confines of the county has the opportunity of acquiring at least a good common school education.

COAL.

Good coal is found in the northern part of the county, but owing to the nearness of other coal mines to the present railroad line no mines of coal have been developed, except such as the near-by settlers may do when removing coal for their immediate use.

HOMESTEAD LOCATIONS.

About two hundred homestead filings have been made at the Clayton land office during the past year, nearly all of which have been within this county, and while there is yet much valuable Government land here the indication is that the land containing living water will soon become individual property.

COST OF LIVING.

Exceptional inducements are offered the homeseeker in this county. Should he wish to engage in ranching, he may select his homestead from the thousand of acres of Government land at a cost of $16 for his 160 acres. He will find the expense of living not materially different from that in the East. Flour costs $2.80 per hundred; meats and grains are cheaper than they are in the far East, and groceries at prices charged in Denver or Kansas City, and in this climate of sunshine, after a few years, the summer heat of eastern districts, unknown in the arid portions of the West, and the rigors of severe winters of the Orient will hold out no inducement to him to leave the country of his adoption.

RAILROADS.

Union County is crossed by the Union Pacific, Denver and Gulf Railroad, a road running from Denver, Colo., to Fort Worth, Tex., a distance of 780 miles, which enters the county at a point near Folsom and leaves it at Texline, Tex. This road, which was built in 1888, has during the past five years improved greatly its roadbed and rolling stock until it has become one of the best roads in the West. Its passenger service is, because of its new and excellent coaches and fast-running trains, worthy of particular mention, and the traveler, leaving New Mexico one morning, reaches by close connections the city of Denver the same afternoon and Chicago the following evening. The road has, in way of improvements in Union County for the first six months of 1898, laid 10 miles of 65-pound steel in place of